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List of Trees and Shrubs mentioned in the Report and their Scientific names.

English and Vernacular names.	Scientific name.
Anjan	*Hardwickia binata.*
Babul	*Acacia arabica.*
Bahan	*Populus euphratica.*
Bamboo	*Dendrocalamus strictus.*
Casuarina	*Casuarina equisetifolia.*
Heddi	*Adina cordifolia.*
Hirda	*Terminalia chebula.*
Honne	*Pterocarpus marsupium.*
Kandi	*Prosopis specigera.*
Khair	*Acacia catechu.*
Lantana	*Lantana camara.*
Lai	*Tamarix sp.*
Mango	*Mangifera indica.*
Matti, Ain	*Terminalia tomentosa.*
Mhowra	*Bassia latifolia.*
Mulberry	*Morus alba.*
Nana	*Lagerstroemia microcarpa.*
Rosha	*Cymbopogan martinii.*
Sandal	*Santalum album.*
Sissum	*Dalbergia latifolia.*
Shivan, Shivni	*Gmelina aroborea.*
Sawar, Simul	*Bombax malabaricum.*
Tali	*Dalbergia sissoo.*
Teak	*Tectona grandis.*
Tiwas, Karimuttal	*Ougeinia dalbergioides.*
Tarwad	*Cassia auriculata.*
Timbru	*Diospyrus melanoxylon.*

FOREST ADMINISTRATION REPORT OF THE BOMBAY PRESIDENCY INCLUDING SIND FOR THE YEAR 1933-34.

CHAPTER I.

CONSTITUTION OF STATE FORESTS.

1. ALTERATIONS IN AREA. (Forms Nos. 51 to 51D.)

The changes in forest area were as follows:—

Class of forest.		Area on 1st April 1933.	Added during the year.	Excluded during the year.	Area on 31st March 1934.
		Sq. miles.	Sq. miles.	Sq. miles.	Sq. miles.
Reserved ..	In charge of Forest Department ..	12,014	1,486	1,866	11,660
	In charge of Revenue Department ..	1,683			1,657
Protected ..	In charge of Forest Department ..	551	33	337	246
	In charge of Revenue Department ..	621			622
	Total ..	14,869	1,519	2,203	14,185

The areas added and excluded comprise:—

	Square miles.	
	Gain.	Loss.
Afforestations against and disforestments in favour of cultivation	1	28
Alluvial accretions and erosions in Sind	16	15
Transferred to the Government of India	..	661
Transfer from one Division to another	1,489	1,489
Transfer from Protected to Reserved Forest ..	4	4
Transfer from Reserved to Protected Forest ..	6	6
Errors corrected	3	..
	1,519	2,203

Net loss 684 square miles.

The most important change in the forest area during the year was the transfer of the Dangs in the Surat Division to the Government of India with effect from 1st July 1933, *vide* Government Resolution, Political and Reforms Department, No. 8885, dated 29th May 1933. In consequence of this transfer the remaining areas of the Surat Division were re-distributed, the Mandvi Sub-Division being transferred to the West Khandesh

Division of the Central Circle, and the Baragaon Dangs to the East Nasik Division with effect from the same date as sanctioned in Government Resolution, Revenue Department, No. 706/33, dated 15th June 1933.

Large forest areas viz. 4 square miles in the Northern Circle, 22 square miles in the Central Circle, and 2 square miles in the Southern Circle, were disforested during the year chiefly in favour of cultivation.

An area of about 2 square miles which were submerged in the Bhandardara Lake in the Central Circle, was transferred to the Public Works Department. The areas aggregating about 4 square miles given out for cultivation in exchange for malki lands submerged in the Andhra valley and Mulshi lakes in the same Circle are in process of being disforested.

2. Forest Settlements.

The operations of the year are given in Form No. 52 for each circle. The area finally settled during the year was about 9 square miles, chiefly in the Central and Sind Circles. A sum of Rs. 19 was incurred on settlement in the Central Circle.

Out of the 11 square miles of Government waste lands in the Mandvi taluka (Surat District) notified under section 4 of the Indian Forest Act, only an area of 409 acres was settled during the year, and the remainder still awaits final notification under section 20 of that Act.

Similarly, 1,713 acres of Apta and other villages of Panwel taluka of the Kolaba District also await final settlement pending the decision of the Privy Council, to whom Sardar Biwalkar has preferred an appeal against the High Court's decision in this connection.

3. Demarcation.

106 miles of new boundaries were demarcated in the Northern, Southern and Sind Circles at a cost of Rs. 1,519; and 24,876 miles of existing boundaries were repaired in all Circles at a cost of Rs. 2,327. The frontier lines—31 miles between Mysore and British territories, and 23 miles between Goa and British territories—were cleared in the Southern Circle. The total length of boundaries at the close of the year was 40,670 miles.

As advised by the Forest Advisory Committee, 3,676 new cairns were erected through Guards' agency between the old boundary cairns in the Scrub forests of the East Khandesh Division in order to distinguish the open and closed area.

4. Forest Surveys.

No survey work was done during the year. The final report on the survey work undertaken during 1931–32 by No. 6 Party, Survey of India, in Kanara, Dharwar and Bijapur Districts is still awaited.

The expenditure incurred on the constitution of State Forests was as under :—

	1933-34.	1932-33.
	Rs.	Rs.
Northern Circle	1,444	86
Central Circle	19	250
Southern Circle	..	..
Sind Circle	9	..

CHAPTER II.

MANAGEMENT OF STATE FORESTS.

1. Regulation of Management.

(a) Preparation and Control of Regular Working Plans.

Preparation (Form No. 55).—The work of preparation and revision of Working Plans progressed steadily and the following are the details of work done during the year.

Working Plans finally sanctioned by Government were :—

(1) Working Plan for the exploitation of the Thana Malki Teak (Government Resolution, Revenue Department, No. 43/33 of 7th April 1933).

(2) Working Plan for the Protected Forests in charge of the Forest Department and nominal Reserves in the Thana District (Government Resolution, Revenue Department, No. 1009/33 of 7th February 1934). In view of the depressed state of the timber market the operation of this working plan has been held in abeyance for a period of 2 years under orders of the Chief Conservator.

(3) Working Plan for the Poona Forests (Government Resolution, Revenue Department, No. 118/33 of 13th December 1933).

(4) Working Plan for the Fuel and Fodder Reserves of the Bijapur District (Government Resolution, Revenue Department, No. 1258/33, dated 17th February 1934).

The revised Working Plan for the Nasik Teak Pole Jungles drawn up by the Divisional Forest Officer, Working Plans, is under scrutiny by the Divisional Forest Officers, East and West Nasik Divisions.

The Thana Working Plan and the Plan for the Igatpuri forests are under revision.

The preliminary report for the Thana Gurcharans was approved by the Chief Conservator and a Working Plan for the Gurcharans is now being drawn up by the Gurcharan Officer.

The Working Plan for the Satara Division prepared by the Working Plans Officer is being corrected on the lines suggested by the Conservator of Forests, Central Circle.

MO-III Bk E 63—1a

The revision of the Working Plan for the Satmala forests of the East Khandesh Division was taken in hand, and the field work has been mostly completed.

The two revised working plans, one for the Haliyal Teak Pole Forests including Block VIIA and the other for the Nagzari Valley and Kalinadi-Kaneri Slopes have been completed and are now in the Press.

Field work in connection with the revision of the Yellapur-Mundgod High Forest Working Plan was continued, and cent per cent. enumeration in compartments falling within the first Periodic Block was carried out.

A combined Working Plan for the forests of the two Lower Sind Divisions is under preparation by the Divisional Forest Officer, Working Plans. The field work has been completed.

(*b*) *Control of Working Plans.*

The prescriptions of the existing working plans were carried out as far as possible. Lack of demand combined with the poor quality of tree-growth and frequent long leads etc. was responsible for arrears of fellings in the Northern Circle. The fellings under the Improvement Felling Cycle of the Nawapur-Nandurbar Working Plan have been found to be far too heavy, and the Divisional Forest Officer has been directed to re-examine the working of this Plan. As it was found impracticable to enforce all the prescriptions of the Umarpata Working Plan in the West Khandesh Division, a modification was made in the marking so as to permit the contractor to leave stems of unmarketable inferior species which did not interfere with the development of superior species. The prescriptions for the Pasture Working Circle of the Poona Working Plan could not be followed, as one of the prescriptions viz. "rotational grazing" was found to be far ahead of local public opinion, which viewed this innovation with great suspicion. Propaganda is necessary to create public opinion in favour of this system. In the Southern Circle the regeneration fellings prescribed under the revised Working Plan for Series X and XI of Gund Working Circle had to be restricted for want of funds. The work in this Circle remained in arrears in certain cases due to lack of demand and the difficulty of extraction. Reduced permit rates sanctioned in Government Resolution, Revenue Department, No. 10107/24, dated 24th February 1934 will, it is hoped, increase the demand for Tali palms in Kanara. In the Sind Circle some coupes remained unsold in the Shikarpur Division but arrear coupes of previous years were worked in the Karachi Division, the demand for fuel being greater in the Lower Sind Divisions.

2. Communications and Buildings.

(*a*) *Roads and Bridges.*

Owing to the financial stringency little progress was possible in road construction during the year. Construction work was undertaken on

10 miles of new roads in the Northern and Southern Circles, and repairs were carried out on 1,130 miles of existing roads in all Circles. The expenditure on new works and repairs was respectively Rs. 26,070 and Rs. 88,584 as against Rs. 70,441 and Rs. 88,841 in the previous year. The transfer of the Dangs to the Government of India accounts for the decrease in expenditure on roads. The amount charged to repairs includes Rs. 43,895 representing maintenance charges of the Alnavar-Dandeli Railway.

The alignment of the proposed Ozar-Saiwan road in the Northern Circle was completed during the year. Plans and estimates for this road have been prepared by the Forest Engineer and are being scrutinized by the Conservator. This road will tap a very valuable area and is urgently required.

The survey of a proposed 2nd class metalled road between Temba and Parali in the East Thana Division was undertaken and completed by the Forest Engineering establishment during the year.

According to Government Resolution, Revenue Department, No. 9561/28, dated 16th September 1933 the Ambegaon-Golshi, Nanashi-Gandola and Gandola-Barhe roads in the West Nasik Division aggregating 14 miles 7½ furlongs in length were taken over by this Department for maintenance from the District Local Board, Nasik.

No progress was made with the Dara-Dhadgaon road in the Central Circle for want of funds. The Conservator, Central Circle, reports the necessity of extending the existing Borzar-Charnal road as far as Umarpata, and of connecting it to the Public Works Department road, as this will greatly facilitate the working of the forests covered by the Umarpata Working Plan of the West Khandesh Division. A few more roads are also needed to facilitate the working of the forests covered by the Nawapur-Nandurbar and Deomogra Working Plans in the West Khandesh Division.

(*b*) *Buildings.*

The total expenditure incurred on the construction of new buildings was Rs. 32,745 against Rs. 29,056 in the previous year. The expenditure on repairs was Rs. 24,135 against Rs. 24,195 in the previous year. Only works which were absolutely necessary were carried out, in view of the financial stringency. The Conservators report that the existing housing arrangement for subordinates in most unsatisfactory. Nothing much can however be done to improve the situation until the financial situation improves.

(*c*) *Miscellaneous* (*other works*).

Expenditure on wells, telephone rents, fencing of compounds, repairs to bunds and karias, Public Works Department water charges, etc., was Rs. 9,255, of which only Rs. 1,412 were spent on new works, against Rs. 11,841 last year.

3. Protection of Forests.

(a) *General Protection.* (Form No. 57.)

Class of offence.	1933-34.					1932-33.	Average of 1930-31 to 1932-33.
	Northern Circle.	Central Circle.	Southern Circle.	Sind Circle.	Total.		
I. Injury to forest by fire.	671	708	382	206	1,967	1,902	2,023
II. Unauthorized felling or removal of produce ..	4,373	4,247	1,346	1,335	11,301	11,113	10,783
III. Unauthorized grazing ..	2,111	2,000	590	1,933	6,634	6,645	6,517
IV. Other offences	966	1,191	343	354	2,854	2,924	2,532
Total of 1933-34 ..	8,121	8,146	2,661	3,828	22,756	..	..
Total of 1932-33 ..	7,648	8,361	2,718	3,857	..	22,584	..
Average of 1930-31 to 1932-33 ..	7,147	8,596	2,906	3,306	..	..	21,955

As compared with 1932–33 the total number of offences shows an increase of 172, the Northern Circle contributing thereto. There was an increase of 65 and 188 under classes I and II and a decrease of 11 and 70 under classes III and IV.

Injury by fire.—The increase of 65 in the total number of fire offences is shared by the Northern and Central Circles. Causes for the increase or decrease in fire offences are discussed under "Protection from fire".

Unauthorized fellings.—The offences under this head show on the whole an increase of 188 as compared with those of the previous year. Northern and Southern Circles show an increase of 438 and 17 while Central and Sind Circles show a decrease of 102 and 165 respectively. The increase in the Northern Circle is attributed to the maintenance of a register in the West Nasik Divisional Forest Office wherein the number of offences detected by each guard and forester is recorded. This serves as an index to the amount of patrolling work done by each man, and offences which used to go unreported in the past are now being reported. The small increase in the Southern Circle is reported to be mainly due to stricter supervision. The decrease in the Central Circle is due partly to the subordinates having been employed on cultural operations for a longer time than usual and partly to the needs of the villagers having been met from the proceeds of such operations in return for labour. The decrease in the Sind Circle is mainly due to a smaller influx of Kohistan and hill maldars than in the previous year.

Unauthorized grazing.—Offences under this head decreased in all Circles except the Northern Circle. The reasons for the increase in the Northern Circle are the same as given under "unauthorized fellings" above. The decrease in the other circles is attributed to various causes

such as abundance of grass in malki lands, reduction of the period of closure from 10 to 5 years in some cases, greater facilities afforded for grazing etc.

Other offences.—Offences under this head mostly relate to breach of transit and game rules and encroachment in forest areas. On the whole there was a decrease of 70 in the total number of offences, though the Southern and Sind Circles show an increase of 173 and 21 as compared with the previous year. The decrease or increase in offences of this class depends on circumstances which cannot be analysed or attributed to any particular cause.

300 new cases were taken to court during the year. 329 cases, including the 126 cases pending from the previous year, were decided, and of these 292 or 89 per cent. resulted in convictions, 18,878 cases were compounded, and compensation amounting to Rs. 89,178 was recovered in 18,146 cases, the average per case being Rs. 4·9 as compared with Rs. 5·7 in the previous year. Offenders in 732 cases were let off with a warning and in 3,495 or 14 per cent. of the new and pending cases the offenders were not detected.

The two cases under the Indian Penal Code pending from the previous year in the Sind Circle were disposed of during the year, the offenders being convicted and sentenced to undergo imprisonment and to pay fines. 4 fresh cases were taken to court during the year in the Hyderabad Division under charges of having made false allegations against forest subordinates. Of these, one resulted in conviction, one was withdrawn and 2 are pending in the court.

(*b*) *Protection from fire.*

The figures in the subjoined statement compare the result of the two fire seasons, 1st June 1932 to 31st May 1933 and 1st June 1933 to 31st May 1934. These figures do not tally with those in appendix 58 which are for the financial year ending 31st March 1934 :—

Circle.	Fire season of	Area attempted to be protected.	Failures	Area actually protected.	Percentage of area actually protected.	Cost.	Cost per square mile protected.
		Sq. miles	Sq. miles	Sq. miles	Per cent.	Rs.	Rs.
Northern ..	1933–34 ..	3,334	69	3,265	98	11,675	3·6
	1932–33 ..	3,334	59	3,275	98	16,396	5·0
Central ..	1933–34 ..	3,897	466	3,431	88	7,903	2·3
	1932–33 ..	3,831	345	3,486	91	7,221	2·0
Southern ..	1933–34 ..	1,574	71	1,503	95	8,328	5·5
	1932–33 ..	1,649	79	1,570	95	6,394	4·1
Sind ..	1933–34 ..	484	10	474	98	746	1·6
	1932–33 ..	480	4	476	99	650	1·3
Total ..	1933–34 ..	9,289	616	8,673	93	28,652	3·3
	1932–33 ..	9,294	487	8,807	95	30,661	3·5

There has been an increase in the area burnt in the Northern Circle, the Panch Mahals, East and West Thana and West Nasik Divisions contributing thereto. In the Panch Mahals Division the long term contractors of grass and *timbru* leaves in the Western Mahals and cattle thieves in the Eastern Mahals were responsible for some of the intentional fires, while persons using the roads, cart tracks etc. passing through the forests were responsible for a certain number of accidental fires. The increase in the East and West Thana Divisions is attributed to the early desiccation of grass in the forest. The fires in the grass kurans in the Nasik and Dindori Ranges account for the increase in the West Nasik Division.

In the Central Circle the increase is shared by the East Khandesh and Poona Divisions. The area burnt in the former Division was more than $2\frac{1}{2}$ times the area burnt in the previous season. The increase is said to be due to the carelessness of the villagers and travellers passing through forests, and also to the fact that the exceptionally heavy rains had produced an unusual crop of grass. In the Poona Division the increase was mainly due to the conditions brought about by plague which ravaged most of the forest villages and led the people to go and live in out of the way places, rendering early assistance to put out fires a matter of great difficulty.

The Southern Circle shows on the whole a decrease in the area burnt during the year as compared with the previous year, Kanara Eastern Division and Dharwar-Bijapur Division contributing thereto. The fire protection was excellent in Eastern Division Kanara being to some extent due to the heavy rains at the end of December which caused the undergrowth to remain damp throughout large areas until the hot weather showers in April. In Katur Range of this Division special efforts were made, with signal success, to protect large areas at a total cost of Rs. 1,000 spent on (i) cleaning and firetracing 60 miles of old compartment lines, (ii) burning 53 miles along roads and foot-paths, and cultivation boundaries and (iii) maintaining a regular system of patrol during the critical months. Remissions or enhancements of grazing fees for good or bad fire protection in forest villages had an appreciable effect. Prompt measures taken by subordinates as well as the rains during the fire season resulted in a decrease in burnt areas of the Dharwar-Bijapur Division.

The area burnt in the Sind Circle exceeded that of the previous year and is attributed to the fact that the exceptionally severe frost experienced towards the end of the winter season caused the grass to dry up quickly and become highly inflammable. Wilful incendiarism on the part of Maldars to obtain fresh grass was also partly responsible for this increase.

For successful fire protection in the Dangs (Surat Division) rewards in the shape of turbans and silver bangles of an aggregate value of Rs. 549-4-0 were distributed among Patils and Village servants as usual, at the annual Darbar held prior to the transfer of the Dangs to the Government of India. Remissions and reduction of grazing fees were

granted in Sakri, Nawapur and Chinchpada Ranges of the West Khandesh Division for good fire protection. In the Mandvi Range rewards in the form of turbans worth Rs. 104 were given and in some cases remission of grazing fee was awarded. In East Khandesh a sum of Rs. 251 was distributed among persons who rendered help in putting out forest fires. In the Southern Circle 31 villages and 42 persons were rewarded with free grazing. Similarly, remission of grazing fees was granted for 326 cattle owned by Charitable Institutions in the Bijapur District. 18 villages were allowed grazing at reduced rates for good fire protection, and 9 villages were punished with enhancement of grazing fees for bad fire protection.

The following statement compares the number and origin of fires for the financial years 1932-33 and 1933-34 :—

Origin.	Number of fires.		Area burnt in acres.	
	1933-34.	1932-33.	1933-34.	1932-33.
A. Originated in departmental fire conservancy operations..	63	76	24,031	19,500
B. Crossing exterior fire-lines	110	123	44,155	60,675
C. Accidental (persons in forest)	545	522	137,755	53,392
D. Intentional (persons in forest)	216	146	29,191	21,375
E. Railway Engines ..	20	10	2,237	644
F. Lightning	1	....	2	....
G. Causes unknown ..	1,013	1,006	194,878	163,602
Total ..	1,968	1,883	432,249	319,188

(c) *Protection from Cattle.* (Forms Nos. 60 and 61.)

The forest areas open and closed to grazing were as follows :—

	Sq. miles.	Per cent.
Closed to all animals for whole year	1,399	9·9
Closed to all animals for part of the year	313	2·2
Open to all animals except browsers for the whole year..	9,536	67·2
Open to all animals for the whole year	2,917	20·6
Open to all animals for part of the year	18	0·1
Total ..	14,183	....

The area open to grazing of horned cattle throughout the year was nearly 88 per cent. of the Presidency forests. The reduction in the period of closure from ten to five years was continued in Thana, Panch Mahals and Kolaba Divisions. In other parts closure was relaxed where necessary.

The number of cattle admitted to grazing was as follows :—

Circle.	Horned cattle.		Sheep and Goats.	
	1933–34.	1932–33.	1933–34.	1932–33.
Northern ..	774,141	749,431	209,065	128,698
Central ..	732,868	707,751	208,441	215,014
Southern ..	357,304	322,878	83,888	77,478
Sind ..	48,132	40,417	108,408	92,625
Total ..	1,912,445	1,820,477	609,802	513,815

Circle.	Camels.		Other animals.		Total.	
	1933–34.	1932–33.	1933–34.	1932–33.	1933–34.	1932–33.
Northern ..	..	..	3,164	2,162	986,370	880,291
Central ..	..	..	7,491	8,351	948,800	931,116
Southern ..	..	..	187	178	441,379	400,534
Sind ..	2,937	2,284	2,708	3,225	162,185	138,551
Total ..	2,937	2,284	13,550	13,916	2,538,734	2,350,492

As compared with the last year's figures there was an increase in the number of cattle admitted to grazing, all Circles contributing thereto.

In the Northern Circle the increase was most marked in the East Nasik Division, where, owing to the tightening up of control in regard to recovery of grazing fees, there was a remarkable increase in the recorded number of cattle and in the grazing fees collected during the year which amounted to Rs. 1,02,928 as against Rs. 51,279 and Rs. 68,395 collected in the previous two years.

In the Central Circle there was an increase in the number of horned cattle, but a decrease in the number of sheep and goats. The increase is attributed partly to the vigilance of the subordinates shown in grazing fee collection, and partly to the addition of the Mandvi Sub-Division to this Circle from the Northern Circle. Satara Division was mainly responsible for the decrease of sheep and goats which is said to be due to the migration of certain professional graziers who objected to paying the higher rate as per grazing rules. In consultation with the Collector of Satara the grievance of the professional graziers was reconsidered, and it has been decided that persons possessing less than 20 sheep and goats per acre of their holdings will be treated as agriculturists, and their cattle charged at the lower rate, whilst those possessing more than this number of animals will be treated as professional graziers. It is expected that this decision will lead to the return of the smaller professional graziers.

In the Southern and Sind Circles the increase is attributed chiefly to the greater activities of the forest subordinates in recovering grazing fees. In the former Circle arrear grazing fees were recovered from defaulters in the Dharwar-Bijapur Division, and this fact partly accounts for the increase in that Circle.

Out of 2,538,734 cattle admitted to grazing in the forests, 615,183 were allowed free. Corresponding numbers for the previous year were 2,350,492 and 650,438. The concession of free grazing granted to the cattle belonging to the Mahars of the forest hill villages in the Akola and Sangamner talukas as per Government Resolution, Revenue Department, No. 5815/28, dated 6th June 1932, was continued during the year, and 1,913 cattle took advantage of this concession.

Grazing fees collected during the year amounted to Rs. 5,61,056 as compared with Rs. 4,98,662 in the previous year, the value at full rates being Rs. 23,04,046.

The number of cattle impounded for unauthorized grazing in open and closed forests is given in the following table :—

Circle.	Horned cattle.		Sheep and Goats.		Other animals.		Total.		Total of open and closed.	
	Open.	Closed.	Open.	Closed.	Open.	Closed.	Open.	Closed.	1933-34.	1932-33.
Northern ..	2,670	19,093	11,871	3,065	47	96	14,588	22,254	36,842	29,148
Central ..	6,747	17,645	5,041	4,743	99	160	11,887	22,548	34,435	41,398
Southern ..	721	3,942	2,263	2,550	..	2	2,984	6,494	9,478	11,097
Sind ..	2,667	2,002	1,154	2,844	238	336	4,059	5,182	9,241	9,380
Total ..	12,805	42,682	20,329	13,202	384	594	33,518	56,478	89,996	101,023
Average of three years 1930-31 to 1932-33 ..	12,182	53,473	22,578	14,907	448	1,268	35,208	69,648	104,856	

The total number of impoundings show a decrease which is shared by all Circles. The decrease is attributed partly to the result of strong measures taken in the Northern Circle to put a stop to illicit grazing, and partly to the improvement in the attitude of the cattle owners towards unauthorized grazing.

(*d*) *Protection against injuries from natural causes.*

Vegetable pests.—The eradication of climbers, lantana etc., was carried out as usual partly through contractors and forest guards and partly by paid labour. Steps were taken to eradicate prickly pear in the Poona Division by introducing Cochineal insects as an experimental measure. About 195 acres of forest land were given out in that Division for temporary cultivation on condition of sowing the area with teak and other suitable species after removal of lantana therefrom.

Animal pests.—Elephants, bison, sambar, monkeys, pigs, porcupine, rats, mice and hares were as usual responsible for a certain amount of damage in young plantations in all Circles.

Insect pests.—There was considerable damage by teak defoliators in the East Thana, North Thana, Poona and Kanara, Northern Division. Some new teak plantations in the Kanara Western Division, and some regeneration areas in the Karachi Division, suffered considerable damage from crickets. The teak-stem borer was responsible for some damage in 3 to 4-year old plantations of the Belgaum Division. Larvæ of the species "cerambicidæ" damaged the leaves of young and old seedlings to a certain extent in the Karachi Division.

Frost and erosion.—There was a heavy frost in January 1934 which caused considerable damage to young teak seedlings in the regeneration areas of the Northern Circle, and to plantations and young coppice in the West Khandesh Division. The frost in Sind was very severe and of long duration, and the regeneration areas in all Divisions suffered excessively.

In the Kolaba Division, damage was again caused by sea erosion to casuarina plantations at Akshi and Nagaon. More than 1 acre of land was eroded and 225 trees were uprooted. The uprooted trees were sold for Rs. 225. Owing to the continued erosion at Davli-Ranjankhar (Kolaba Division) the proposal to plant up this area with casuarina has been dropped.

In Sind 15 square miles of riverain forest area were eroded by the action of the river Indus. A sum of Rs. 20,823 was realized by the sale of material from eroded areas, while 2,924 acres were exploited in anticipation of erosion, and the material resulting therefrom was sold for Rs. 44,277.

CHAPTER III.

SILVICULTURE.

(1) System of Management.

Eight thousand four hundred and ninety-one square miles or 71·3 per cent. of the area under the management of the forest department are organised and worked under the various systems shown below:—

Silvicultural systems.	Area in square miles.	Percentage of the total area.
1. Clear felling	3,789	31·82
2. Selection	722	6·06
3. Uniform	69	0·61
4. Group selection	4	
5. Selection Cum Improvement	1,136	9·54
6. Coppice with standards	1,383	11·61
7. Simple coppice	313	2·63
8. Other	1,075	9·03
Total under silvicultural systems ..	8,491	71·3
Protection, grazing and unallotted	3,415	28·7
Grand total ..	11,906	100

TEAK PLANTATION TECHNIQUE.

(1). A clear burn.

Burn for 1934.
Note unburnt logs rolled into nallah.

(2). A two year old teak plantation.

Arbail compartment 10-coupe 4, 1931, W. D. Kanara,
creepers cut 3 times.

G. P. Z. P. 1934.

(2) General Progress of Regeneration and Afforestation. (Form No. 62.)

(*a*) *Mainly Natural.*

The total area under natural regeneration both concentrated and not concentrated was 58,783 acres of which 23,152 were in the Northern Circle, 16,333 in the Central Circle, 12,736 in the Southern Circle and 6,562 in the Sind Circle.

(*i*) *Concentrated.*

Natural regeneration was supplemented by dibbling seeds of teak, sandal and other valuable junglewoods on burnt patches, by transplanting teak seedlings and by stump planting. In parts of the Central and Northern Circles as an aid to the complete regeneration of areas teak and other species were raised in conjunction with field crops.

While aiming at maintaining a suitable admixture of species, special attention is bestowed on fostering teak wherever the soil and moisture conditions are favourable to its development. In West Thana, for instance, the majority of seedlings raised in some coupes were well over 8 feet in height in about 11 months and seedlings which had developed an abnormal number of laterals were pruned.

In Sind except in the remote inland parts of the Sukkur division *babul* natural regeneration from seed obtained from pods eaten by goats was satisfactory. In Hyderabad frost caused very considerable damage to the seedling crop of the year.

(*iii*) *Not concentrated.*

The progress of natural regeneration both by coppice and seed was on the whole satisfactory throughout the Presidency. In the Panch Mahals division, frost is reported to have caused much damage especially to seedlings raised artificially in blanks. *Khair*, *babul* and *anjan* in the unorganised areas of East Nasik and teak, sandalwood and *babul* in the above ghaut forests of West Nasik were sown in ploughed lines in exploited coupes with satisfactory results.

(*b*) *Mainly artificial.*

Out of the 27,041 acres taken up for artificial reboisement 25,406 were in Sind and were sown with seed of *babul* and *kandi*.

Arrangements for controlled irrigation of inland forests with surplus water from the barrage canals are still incomplete. There was a copious discharge of surplus water in parts of the Larkana division but as it was uncontrolled it collected in depressions and was of no benefit to the forests in general, nor could it be utilised for artificial regeneration.

In the Presidency proper the area regenerated by artificial means was 1,653 acres. The species raised were *babul* in Poona, sandalwood in Dharwar-Bijapur, casuarina in Western Division Kanara and Kolaba and chiefly teak elsewhere including the divisions mentioned above, stump planting and dibbling on burnt patches being the method generally adopted.

(c) *Afforestation.*

The area given out in the Sind Circle for temporary cultivation in order to prepare the land for afforestation during the next or subsequent years amounted to 15,707 acres and the assessment realised was Rs. 63,984. Most of these areas are *kacha* lands on which the flood water remains at too high a level for the introduction of tree growth or are recently felled coupes containing rank grass. Such areas are given out for a year's cultivation in order to work up the soil and clear the area before sowing with *babul.* Blanks which have failed to respond to direct methods are also treated in this way.

Out of 1,274 acres cultivated with khariff in the Larkana Division, 514 acres were in the area which is to receive an assured supply of water from the Barrage canals. 31 acres were added to the existing *tali* plantations and 27 acres of the old plantations in the Shikarpur Division which were cut down in the past and do not exist on the ground are now excluded thus bringing the total area to 533 acres. The total expenditure incurred was Rs. 723 as against Rs. 905 last year.

In all 2,617 maunds of seed was sown in *kachas,* blanks, erosion strips and cultivations aggregating 17,697 acres and the results obtained are reported to be good.

Prolonged cold and frost did much damage to the young plantations and a large number of *tali* trees was blown down by a severe gale which occurred in August 1933. The Newman plantation suffered the most, the extent of damage being about 90 per cent. Frost during January 1934 severely damaged the regeneration raised during the year, which however recovered mostly from the ill-effects though the increment for one year was lost.

(3) Tending of the Growing Stock.

Northern Circle.—In the Panch Mahals Division five year cleanings were started in coupes No. 1 of all blocks of the Western Mahals in order to remove congestion in the crop and the operations while benefiting the forests brought in a small revenue. Thinnings were carried out in 15-year old coupes of the Western Mahals at a cost of Rs. 3,059 and the resultant material was sold for Rs. 7,487. Cleanings were also carried out in all 5-year old coupes in the Thana Divisions.

In accordance with the provision of the working plan 1st thinnings were carried out in 34 coupes of the North Thana Division, 35 coupes of the East Thana Division and 40 coupes of the West Thana Division. Out of these, 77 coupes were sold standing for Rs. 4,246 and the remaining 32 coupes were worked departmentally at a cost of Rs. 417, the resultant material excluding that of the East Thana Division which remained unsold at the end of the year, having fetched Rs. 266.

In addition to the above, teak and injaili standards over 42″ in girth together with other trees to be removed for silvicultural reasons in the old coupes worked under the coppice with standards system, were marked in all the Thana Divisions and 545 such coupes were sold for Rs. 4,80,112 during the year.

G P Z P 1934.

(6). WINDFALL IN TALI PLANTATION, SIND.

A line of fallen trees in 5 successive rows.

(3). An 8 year old teak plantation.

Chickmani plantation on the Arbail-Ramanguli Road, W.D. Kanara, Thinned.

(4). A 13 year old teak plantation.

Amga 1920 Plantation, Kanara, N.D. Thinned 1930.

In the West Nasik Division thinnings were carried out in 7 coupes in the reserved forest and 8 coupes in protected forest. These were sold standing for Rs. 8,945. The thinnings and cleanings started in the plantations at Badgi, Musla and Sawarna in 1932–33 were completed during the year. In most of the Badgi area, in the better portions of Musla and in the whole of Sawarna, the plantations have put on good increment.

Creeper cutting was done in all Divisions.

Central Circle.—Thinnings were carried out in 8 coupes in the North Khandesh Division and in the coupes of the Mandvi and Bulsar-Chikhali forests of the West Khandesh Division according to the prescriptions of the working plans at a cost of Rs. 178 and Rs. 308 respectively. The resultant material fetched Rs. 267 in the North Khandesh Division and Rs. 650 in the West Khandesh Division. In the Poona Division thinning operations including the collection of dead, dying and fallen trees were carried out in the *babul* areas at a cost of Rs. 2,635 and the resultant material was sold for Rs. 9,934.

According to the prescriptions of the Kolaba working plan 74 coupes and 3 arrear coupes were due for thinning. Out of these 16 were sold standing for Rs. 273, 22 were worked departmentally at a cost of Rs. 460 and 26 through the agency of villagers in return for the resultant material and the remaining 13 needed no thinning. Three casuarina coupes were marked for thinning and sold standing for Rs. 200.

In the Satara Division special thinnings were carried out in Nisre coupes of the Patan Range, the amount realised by the sale of the material being Rs. 99.

In Poona and Satara Divisions climber cutting was done by guards.

Southern Circle.—All possible measures were taken to tend the growing stock in all the Divisions. In Kanara Northern Division improvement fellings were continued in 13 compartments and 8 new compartments were taken up during the year. In Kanara Eastern Division felling of inferior species interfering with teak was done by guards. Systematic climber cutting as prescribed in the sandalwood working plan was continued in the Dharwar-Bijapur Division.

Thinnings were carried out in 2,808 acres of the old teak plantations in Kanara Northern Division, 38 plantations and 10 coupes in Kanara Eastern Division, 47 acres of teak and 57 acres of casuarina plantations in Kanara Western Division, 120 acres in the Belgaum Division and in 10 coupes in the Dharwar-Bijapur Division. The revenue realised by sale of material from the thinnings was Rs. 16,488 against an expenditure of Rs. 3,542.

Sind Circle.—Much useful work was done as regards cleaning and spacing of stems in dense young *babul* growth, freeing of young *babul* from inferior species such as *kandi* and *lai*, cutting back of malformed *kandi* stems and weeding and stubbing of grass in *tali* plantations, with beneficial results.

Thinnings were carried out in all Divisions and consisted, as usual, of the removal of suppressed, dead and fallen stems and branchwood.

Observations made during the last 4 years in the more natural *babul* areas in which a very large proportion of leaning and badly shaped trees occur indicated that the amount of spacing between the stems was insufficient for the development of the young trees, and that thinnings in the younger plantations should be made on a far heavier scale. Accordingly a start was made during the year. In the Karachi Division sapling thinnings were carried out over an area of 2,613 acres of *babul* plantations, while in the Hyderabad Division it was done in all the Ranges.

Experience has shown that when *babul* growing in a fully stocked plantation has attained a height of 10 feet which normally occurs in about the 3rd year, a clear spacing of at least 10 feet is necessary while poles and trees should have a minimum spacing of 20 feet and 30 feet respectively. This has now been adopted as a systematic basis for the whole of Sind.

Thinnings and cleanings were also done in the *tali* plantations of Sukkur and Shikarpur Divisions.

The area dealt with, material obtained and the revenue realised from thinnings are given below :—

Area exclusive of sapling thinning	9,031 acres.
Resultant material—	
Timber	6,822 cft.
Fuel	4,247,573 cft.
Revenue realised	1,13,563 Rs.

CHAPTER IV.

EXPLOITATION.

(*a*) System of Management.

(*i*) *Major Forest Produce.* (Form No. 63.)

The areas under various systems of exploitation in force are given in Form No. 55B and are described under (1) System of Management in Chapter III.

All valuable timber from High Forest areas in the Southern Circle and the Dangs in the Northern Circle was brought to depôts for sale, and waste material left behind in these areas was sold by auction. Standing stock in Pole forests and in the less valuable High Forests in the Southern Circle, and all coupes in the other Circles were disposed of by auction through the agency of purchasers. Sandalwood in the Southern Circle was extracted and brought to depôts for conversion and sale.

(*ii*) *Minor Forest Produce.* (Form No. 64.)

As usual minor forest produce was mainly farmed out or sold on permits. 119 khandies of *hirda* were collected departmentally on the share system in the Poona Division at a cost of Rs. 1,439 and sold for Rs. 2,261. The question of payment of royalty for the right of collection of *mhowra* flowers from forest areas in the West Khandesh Division was decided and the Excise Department has agreed to pay a fixed sum of Rs. 2,000 per annum to the Forest Department.

(*b*) Agency of Exploitation.

(*i*) *Departmental Agency.*

The following is a comparative statement of major and minor forest produce extracted departmentally during two years 1933–34 and 1932–33 :—

Circle.	Year.	Major Forest Produce.			
		Timber cft. in thousands.	Fuel cft. in thousands.	Total cft. in thousands.	Sandal-wood value.
					Rs.
Northern	1933–34 ..	88	150	238	..
	1932–33 ..	240	86	326	..
Central	1933–34 ..	15	558	573	3,007
	1932–33 ..	17	541	558	4,201
Southern	1933–34 ..	788	2	790	1,02,931
	1932–33 ..	887	5	892	1,02,392
Sind	1933–34 ..	3	20	23	..
	1932–33 ..	3	92	95	..
Total ..	1933–34 ..	894	730	1,624	1,05,938
	1932–33 ..	1,147	724	1,871	1,06,593
Difference		−253	+6	−247	−655
Percentage of total outturn from all sources ..		12	2	3	100

Circle.	Year.	Minor Forest Produce.			
		Bamboos value.	Grass and grazing value.	Other value.	Total value.
		Rs.	Rs.	Rs.	Rs.
Northern	1933–34 ..	152	..	51	203
	1932–33 ..	56	..	64	120
Central	1933–34 ..	..	..	2,261	2,261
	1932–33 ..	..	..	4,514	4,514
Southern	1933–34 ..	..	..	105	105
	1932–33 ..	..	..	129	129
Sind	1933–34 ..	..	..	454	454
	1932–33 ..	..	..	1,991	1,991
Total ..	1933–34 ..	152	..	2,871	3,023
	1932–33 ..	56	..	6,698	6,754
Difference		+96	..	−3,827	−3,731
Percentage of total outturn from all sources ..		..	..	2	..

The Surat Dangs, where departmental operations are carried out on a large scale, were transferred to the Government of India and this accounts for the decrease under timber in the Northern Circle. The

increase under fuel was due to a larger number of thinning coupes having been worked departmentally than in the previous year.

Departmental operations in the Central Circle were confined to the exploitation of coupes for fuel depôts at Mahableshwar and Panchgani and to silvicultural operations. The increase under fuel was chiefly due to more wind fallen trees having been worked on account of floods. There was, however, a decrease in the Kolaba and Satara Divisions as no material was cut in the former Division for the Matheran depôt there being sufficient balance of fuel in stock, and less material was extracted in the latter Division for the two fuel depôts of the Mahableshwar Range on account of outside private material having been brought to the hill stations at low rates. Fewer sandalwood trees were sold in the Satara Division, and a very low price was offered for *hirda* in the Poona Division. These are the main causes for the decrease under sandalwood and minor produce.

In the Southern Circle the decrease in the outturn of timber was chiefly due to the fact that a larger number of Improvement and Regeneration areas in Kanara Eastern Division were sold standing. Fuel was extracted for the sawmills only. The closing down of the Bomanhalli sawmill was responsible for the fall in the outturn of fuel. The small increase in the revenue from sandalwood was due to better prices realized for chips and saw dust in the Dharwar-Bijapur Division.

The decrease in the outturn of fuel in the Sind Circle was due to departmental operations not having been undertaken as royalty contracts realized reasonable prices. The decrease under minor produce was due to the Lac crop having been destroyed by the frost of 1929 and the farm thereof in the Hyderabad Division having been sold for three seasons.

Timber Depôts.—Owing to the transfer of the Dangs there is now only one timber depôt (at Nasik Road) in the Northern Circle. The average prices realized by sales at this depôt as well as at the depôts in the Southern Circle are compared in the following table :—

Kind of timber.	Average rate per khandi of 12·50 cft.			
	Nasik Road Depôt.		Dandeli Depôt.	
	1933–34.	1932–33.	1933–34.	1932–33.
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Teak ..	....	....	24 14 0	24 4 9
Matti ..	....	....	11 1 11	12 12 5
Nana ..	....	....	11 0 1	11 6 2
Honne ..	....	....	14 12 2	13 8 11
Sissum ..	....	....	11 6 0	12 7 3
Heddi ..	....	....	9 4 8	10 8 6
Karimuttal ..	....	....	....	....
Other junglewood.	....	....	10 13 10	10 7 11
Teak battens ..	16 9 7	14 2 0	20 12 3	18 1 7
Teak scantlings ..	20 13 4	25 8 4	23 12 3	23 1 9
Teak planks ..	....	....	31 11 3	35 4 7

Kind of timber.	Average rate per khandi of 12·50 cft.—*contd.*					
	Kodibag Depôt.		Hattikeri Depôt.		Kirwatti Depôt.	
	1933–34.	1932–33.	1933–34.	1932–33.	1933–34.	1932–33.
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Teak ..	20 10 1	24 11 2	22 4 0	23 15 3	14 4 3	20 1 8
Matti ..	15 4 9	16 9 3	..	15 2 3	8 0 9	11 0 10
Nana ..	..	..	..	..	7 14 0	12 6 3
Honne ..	14 4 11	15 0 8	..	12 6 6	10 14 11	11 13 1
Sissum ..	17 12 8	20 12 1	12 14 7	18 12 0	..	..
Heddi ..	..	..	..	..	5 1 3	..
Karimuttal ..	..	..	..	..	13 6 3	16 4 0
Other jungle wood.	..	..	..	..	..	8 15 9
Teak battens ..	..	..	..	..	13 11 9	15 8 11
Teak scantlings..	..	..	..	..	15 2 8	21 4 7
Teak planks ..	..	..	..	..	22 0 1	26 2 0

There was no appreciable improvement in the timber market, and the prices realized at Dandeli depôt were more or less steady. The low prices at the remaining depôts were due partly to trade depression and partly to the inferior quality of the material offered for sale.

Firewood Depôts.—All depôts in the Northern Circle were worked by contractors. The fuel depôt at Trimbak was discontinued from 1st July 1933 as the same was considered to be no longer necessary. In the Central Circle the depôts at Matheran and Mahableshwar were worked departmentally while that at Panchgani was worked by a contractor who was supplied with fuel cut departmentally. All firewood depôts in Kanara were worked through contractors.

Mechanical extraction and Government sawmills are dealt with in Chapter IV-A.

Private sawmills.—The private sawmill in Kanara Eastern Division belonging to Mr. Sayad Nasrodin Hassansab turned out 13,575 cft. of sawn material as compared with 8,719 cft. in the previous year. No sleepers were sawn during the year.

(ii) Purchasers.

The following table compares the outturn of major and minor produce removed by consumers and purchasers during the years 1933-34 and 1932-33 :—

Circle.	Year.	Major Forest Produce.				
		Timber.		Fuel.		Sandal-wood value.
		Cft. in thou-sands.	Value.	Cft. in thou-sands.	Value.	
			Rs.		Rs.	Rs.
Northern ..	1933-34 ..	2,805	12,85,006	8,946	21,210	..
	1932-33 ..	2,844	15,57,327	6,223	25,093	..
Central ..	1933-34 ..	1,239	3,91,292	4,886	58,774	..
	1932-33 ..	1,115	3,21,684	4,307	52,646	..
Southern ..	1933-34 ..	1,630	2,86,131	5,051	1,79,189	..
	1932-33 ..	1,536	2,75,389	5,358	1,55,796	..
Sind ..	1933-34 ..	267	67,918	20,428	3,54,125	..
	1932-33 ..	301	58,475	16,045	2,20,547	..
Total ..	1933-34 ..	5,941	20,30,347	39,311	6,13,298	..
	1932-33 ..	5,796	22,12,875	31,933	4,54,082	..

Circle.	Year.	Minor Forest Produce.			
		Bamboos value.	Grass and grazing value.	Other minor produce value.	Total value.
		Rs.	Rs.	Rs.	Rs.
Northern ..	1933-34 ..	17,144	1,83,002	29,506	2,29,652
	1932-33 ..	64,937	1,45,377	31,300	2,41,614
Central ..	1933-34 ..	15,330	3,97,055	35,291	4,47,676
	1932-33 ..	15,164	3,80,685	31,480	4,27,329
Southern ..	1933-34 ..	62,149	87,949	36,715	1,86,813
	1932-33 ..	74,207	87,226	31,033	1,92,466
Sind ..	1933-34 ..	....	56,750	15,857	72,607
	1932-33 ..	....	46,888	17,796	64,684
Total ..	1933-34 ..	94,623	7,24,756	1,17,369	9,36,748
	1932-33 ..	1,54,308	6,60,176	1,11,609	9,26,093

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(7). TIMBER SALES AT WAGHAI (DANGS).

Northern Circle.—The transfer of the Surat Dangs to the Government of India and of the Mandvi Sub-Division to the Central Circle was responsible for the decrease both in the value and volume under timber. The decrease was however counterbalanced to some extent by the sale of standards in coupes in the Thana Divisions. The decrease under bamboos and other minor produce was also due to these territorial changes. The increase in the volume of fuel was due to a large number of thinning coupes sold in the Thana Divisions while the transfer of the Mandvi Sub-Division was responsible for the fall in value. The increase under grass and grazing was due to the tightening of the control over recovery of grazing fees in the East Nasik Division.

Central Circle.—The increase in the quantity and value of timber and fuel was partly due to the addition of the Mandvi Sub-Division and partly to better prices obtained for coupes in the East and West Khandesh Divisions. Poona, North Khandesh, Kolaba and Satara Divisions however showed slight decreases due to trade depression. The increase under grass and grazing was due to larger collection of grazing fees in the Khandesh Divisions. The increase under other produce was due partly to greater demand for *anjan* leaves for fodder and partly to more revenue than last year having been realized for *mhowra* flowers in West Khandesh Division.

Southern Circle.—The increase in the value of timber and fuel was due to (1) sale of arrear improvement felling areas in the Kanara Western Division, (2) a larger number of improvement and regeneration areas sold in the Kanara Eastern Division and (3) a larger number of coupes sold in the Dharwar-Bijapur Division. Better prices obtained for coupes and rejected material in the Kanara Eastern Division also contributed to the increase. The fall in the value of bamboos was due to a more limited demand and to the slump in the market. The *hirda* farm of the Belgaum Division and some minor produce farms in the Kanara Eastern Division fetched better prices and helped to increase the value of other minor produce.

Sind Circle.—The decrease in the quantity of timber was due to less number of stakes supplied to the Public Works Department than last year and the increase in value was due to improvement in market rates. Better realizations from sale of coupes, thinnings, deadwood, etc., contracts increased the revenue under fuel. The decrease under other minor produce was due to poor crops of *babul* and *kandi* pods which were damaged by frost.

(iii) Rights, Privileges and Free Grants.

The following is a comparative statement of the quantity and value of forest produce removed by right and privilege holders and free grantees during the years 1933–34 and 1932–33 :—

Circle.	Agency.	Major Forest Produce.				Minor Forest Produce.			
		Timber.		Fuel.		Bamboos value.	Grass and grazing value.	Other minor produce value.	Total value.
		Cft. in thousands.	Value.	Cft. in thousands.	Value.				
			Rs.		Rs.	Rs.	Rs.	Rs.	Rs.
Northern	C ..	2	1,226	4,210	83,484	4,921	5,00,321	9,946	5,15,188
	F ..	14	8,344	..	..	69	..	18	87
Central	C ..	1	196	1,009	33,296	262	43,679	6,507	50,448
	F ..	20	7,848	3	177	2,803	2,730	1,546	7,079
Southern	C ..	300	72,000	3,000	37,500	45,000	2,84,339	20,000	3,49,339
	F ..	48	11,559	4	294	1,438	3,357	1,083	5,878
Sind ..	C ..	1	20	2	40	..	7,387	..	7,387
	F ..	31	3,309	5	80	..	20,159	50	20,209
Total ..	C ..	304	73,442	8,221	1,54,320	50,183	8,35,726	36,453	9,22,362
	F ..	113	31,060	12	551	4,310	26,246	2,697	33,253
Total of 1932–33	C ..	301	72,368	8,253	1,64,845	49,976	8,35,277	38,604	9,23,857
	F ..	106	29,175	19	515	1,404	30,119	2,097	33,620

C=Concessionists. F=Free grantees.

There are no rights except those of way. Privileges are regulated by local rules and orders and these were exercised by villagers as usual in all Circles. Free grants of timber and other produce were given in deserving cases for construction and repair of dwellings, temples, churches, plague huts and for other domestic and agricultural purposes. The Trustees of the Lord Reay Industrial Museum, Poona, have not yet taken delivery of the timber granted to them free in G.R., R.D., No. 6591/28, dated 17th April 1931. Arrangements to supply the free grant are still in progress.

(c) Outturn and Sources of Forest Produce.

The outturn from all sources of forest produce during the two years 1933–34 and 1932–33 compares as follows :—

Circle.	Year.	Major Forest Produce.			Minor Forest Produce.		
		Timber cft. in thousands.	Fuel cft. in thousands.	Sandal-wood.	Bamboos.	Grass and grazing.	Other minor produce.
				Rs.	Rs.	Rs.	Rs.
Northern ..	1933-34 ..	2,909	13,306	..	22,286	6,83,323	39,521
	1932-33 ..	3,104	10,854	..	70,272	6,51,312	41,284
Central ..	1933-34 ..	1,275	6,456	3,007	18,395	4,43,464	45,605
	1932-33 ..	1,157	5,557	4,201	15,888	4,19,805	45,715
Southern ..	1933-34 ..	2,766	8,057	1,02,931	1,08,587	3,75,645	57,903
	1932-33 ..	2,756	8,377	1,02,392	1,19,584	3,75,249	52,082
Sind ..	1933-34 ..	302	20,455	..	..	84,296	16,361
	1932-33 ..	333	16,141	..	..	79,206	19,927
Total ..	1933-34 ..	7,252	48,274	1,05,938	1,49,268	15,86,728	1,59,390
	1932-33 ..	7,350	40,929	1,06,593	2,05,744	15,25,572	1,59,008
Difference ..	....	— 98	+7,345	— 655	— 56,476	+61,156	+382

The expenditure on management of State Forests was as under :—

Circle.	1933–34.	1932–33.
	Rs.	Rs.
Northern	1,55,775	2,61,415
Central	73,534	66,807
Southern	7,40,070	9,36,346
Sind	25,851	18,330
Total ..	9,95,230	13,01,898

The decrease was due to the transfer of the Dangs from the Northern Circle and to the curtailment of departmental works in the Southern Circle in favour of sales of standing coupes.

CHAPTER IV-A.

THE FOREST ENGINEERING BRANCH.

The forest engineering branch carried out the following works during the year :—

1. Surveys.

Project.	Locality.	Nature of work.
1. Tembe-Parali Road	Northern Circle, East Thana Division.	Revision survey.
2. Waghai-Awha Road	Northern Circle, The Dangs.	Survey of drainage system.
3. Mulchand deviation	Do. ..	Realignment.
4. Gundapani Nalla crossing ..	Do. ..	Alignment.
5. Masti Nalla Causeway and Ropeway foot bridge.	Southern Circle, E. Kanara Division.	Survey.

2. Designs and Drawing Work.

Plans and estimates submitted by Divisional Forest Officers were scrutinised and checked while all demands made for standard and special plans and estimates were supplied to the divisions requiring them.

3. Construction.

The following construction work and repairs were carried out :—

(*a*) *Roads and Bridges.*—

	Rs.
1. Causeway over the Chiktiya Nalla	1,000
2. Three-span culvert near the Chiktiya Nalla ..	1,638
3. Low-level causeway over the Hulgod Nalla ..	2,738
4. Current repairs to the Tamange road	500

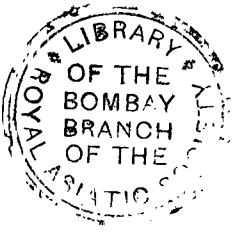
(*b*) *Buildings.*—Two sheds, one for timber seasoning and the other for inflammable stores were constructed at Kirwatti costing Rs. 2,052 and 547 respectively.

Repairs to the quarters of the engineering staff, the stores shed and the water reservoir at Dandeli cost Rs. 206.

4. Forest Exploitation.

(*a*) *Mechanical extraction.*

(*i*) *Fordson outfit.*—Work commenced on the 21st November 1933 with one Fordson outfit operating in Compartment 26, Block XI, Nagzari valley, where by the 4th February 1934 it had extracted 251·38 tons at an all in cost of Rs. 19–13–0 per ton over a mean lead of 2,210 feet. From the 5th February to the 19th March 1934 skidding operations were confined to Compartment 16, Block X and to the improvement plots Nos. VII and VIII on the Kaneri slopes of the Gund rage, where 2 Fordson outfits together hauled 263·27 tons at an all-in cost of Rs. 21–1–0 per ton over a mean lead of 1,770 feet.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(10). ANIMAL WINCH AT WORK.

There has been a general rise in extraction costs owing to a revision in the manner of apportioning supervision charges and to the higher rate of pay drawn by the Forest Engineer since the date he passed the efficiency bar. The higher cost incurred in Gund as compared with that in the Nagzari valley, in spite of a shorter length of haul, is due to the fact that the logs to be extracted being scattered far and wide over extremely difficult country necessitated frequent shifting and setting up of the outfits and the time thus lost increased unduly the number of uneffective working days.

Mechanical skidding has hitherto been confined to up hill hauling, but experiments made during the year have demonstrated the possibility of successfully employing the Fordson outfits for down-hill extraction as well, a type of work which up to now had always been done by means of elephants. This is a very gratifying discovery the value of which will be utilised at the first available opportunity.

(*ii*) *Animal winch.*—The animal winch was worked under the control of the Divisional Forest Officer, Northern Division, Kanara, in Compartments Nos. 26 and 32, Nagzari valley. It extracted 416·36 tons against 159·31 tons last year, the average length of lead being 529 and 487 feet respectively.

Working costs inclusive of all charges averaged Rs. 6–3–0 per ton against Rs. 9–8–0 last year, the decrease being due to a longer period of intensive work and easier gradients encountered.

(*b*) *Sawmilling.*

1. *Preliminary.*—The following sawmills were worked departmentally in the Southern Circle during the year :—

(1) The mill at Dandeli in Kanara Northern Division.
(2) The Foden Portable mill at Bomanhalli in Kanara Northern Division.
(3) The mill at Kirwatti in Kanara Eastern Division.
(4) The mill at Mandurli in Kanara Northern Division.

The sawmill at Sundha in the Dangs (Surat Division) was under the administrative control of the Government of Bombay up to 30th June 1933 and thereafter was transferred to the Government of India.

2. *General.*—The total output and average cost of conversion are given for the last five years in the subjoined statement :—

Year.	Output of sawn material.	Average cost of conversion (Stores, Establishment and Labour charges) excluding overhead charges.
	Rs.	
1929–30	3,12,453	4·96
1930–31	3,26,450	4·48
1931–32	3,32,616	4·16
1932–33	2,86,796	4·01
1933–34	1,95,760	4·36

The reduction in output is due partly to the closing down of the Foden mill at Bomanhalli and partly to the curtailment by the M.& S.M. Railway of their indent for sleepers, while the increase in sawing costs is mainly due to the fact that the Kirwatti mill was idle for about a month and the staff and labour were engaged on erecting a new engine and sorting the timber in the mill depot.

3. *Dead Stock and Stores.*—The deadstock of all the sawmills was checked and unserviceable articles were either repaired or written off under proper authority.

The value of stores and articles of dead stock supplied to the mills during the year was Rs. 6,891 and 16,595 respectively.

4. *Progress of sawmilling.*—The Foden sawmill at Bomanhalli was finally closed on the 21st November 1933 and its assets and establishment were transferred to other mills.

The old Ruston-Proctor engine of the Kirwatti mill which was replaced by the Ransome engine from Dandeli was sold for Rs. 1,100 and the log mill at Kirwatti was dismantled and re-erected on a concrete foundation at a cost of Rs. 130.

The following table shows the outturn and average sawing charges incurred under the heads stores, labour and establishment excluding overhead charges :—

Name of sawmill.	Output during the year in c.ft.			Average sawing cost in c.ft.		
				Stores.		
	1931-32.	1932-33.	1933-34.	1931-32.	1932-33.	1933-34.
	C. ft.	C. ft.	C. ft.	As.	As.	As.
Northern Circle—						
Dangs sawmill..	54,625	46,058	....	1·53	1·74	....
Haste sawmill ..	30,737	Closed	down.	0·46	Closed	down.
Southern Circle—						
Dandeli sawmill	133,166	127,758	127,505	0·72	0·83	0·67
Foden Portable	42,824	43,642	15,467	0·76	0·75	1·69
Mandurli sawmill	20,206	9,355	16,792	0·98	0·76	1·14
Kirwatti sawmill	51,058	59,983	35,996	0·68	0·64	1·28
Total for Presidency ..	332,616	286,796	195,760	0·85	0·92	0·90

Name of sawmill.	Average sawing cost in c.ft—*contd.*						Total excluding overhead charges.		
	Labour.			Establishment.					
	1931-32.	1932-33.	1933-34.	1931-32.	1932-33.	1933-34.	1931-32.	1932-33.	1933-34.
	As.	As.	As.	As.	As.	As.	As.	As.	As.
Northern Circle—									
Dangs sawmill..	2·95	2·45	..	1·03	0·82	..	5·51	5·01	(*a*)
Haste sawmill ..	2·21	Closed	down.	0·49	Closed	down.	3·16	Closed	down (*b*)
Southern Circle—									
Dandeli sawmill	3·09	2·90	2·85	0·51	0·52	0·49	4·32	4·25	4·01
Foden Portable	1·84	1·97	2·38	0·82	0·76	0·92	3·42	3·48	4·99(*c*)
Mandurli sawmill	1·65	1·45	2·26	0·38	0·40	0·86	3·01	2·61	4·26(*d*)
Kirwatti sawmill	2·88	2·39	3·58	0·43	0·30	0·57	3·99	3·33	5·43(*e*)
Total for Presidency ..	2·70	2·53	2·89	0·61	0·56	0·57	4·16	4·01	4·36

(*a*) This mill was transferred to the Government of India from 1st July 1933.
(*b*) This mill was closed down on 30th May 1932.
(*c*) This mill was closed down on 20th November 1933.
(*d*) This mill was closed down from July to November 1933.
(*e*) This mill was closed for erection of Ransome engine from 29th April to 22nd May 1933.

Sawmill Trading accounts.—The outside audit branch of the Accountant General's office audited the trading accounts of the Dandeli mill and stores account of the Forest Engineering branch for the year 1932–33.

The following are the trading accounts of the sawmills :—

Trading account of Dandeli Mill for 1933–34.

Capital cost Rs. 97,453 + 55 — 465 = 97,043 — 49,560 = 47,483.

Expenditure.		Income.		
	Rs.		Rs.	Rs.
I. Timber (unconverted) 174,194 c.ft.	1,27,017	I. Sales— Sale of sawn timber during the year, 124,424 c.ft. ..	2,68,801	
II. General stores..	5,327	*Less*— Stock of sawn timber at the end of the previous year 76,613 c.ft. ..	—1,06,142	
III. Establishment .	7,038			
IV. Labour ..	27,595			
V. Depreciation on capital cost..	3,260			
VI. Interest on capital cost..	8,433			
VII. Repairs to buildings ..	114	*Add*— Stock of sawn timber at the end of the year 79,694 c.ft. ..	1,11,655	
VIII. Miscellaneous ..	190			2,74,314
Net profit for the year..	96,031	II. Miscellaneous ..		691
	2,75,005			2,75,005

Trading account of Bomanhalli Mill for 1933-34.

Capital cost Rs. 21,124 + 207 = 21,331 — Rs. 21,331 = *Nil.*

Expenditure.	Rs.	Income.	Rs.	Rs.
I. Timber (unconverted) 20,822 c.ft...	6,512	I. Sales— Sale of sawn timber during the year 42,402 c.ft. ..	75,110	
II. General stores..	938	*Less*— Stock of sawn timber at the end of the previous year 36,846 c.ft. ..	—37,422	
III. Establishment .	622			
IV. Labour ..	4,039	*Add*— Stock of sawn timber at the end of the year 9,912 c.ft. ..	12,803	
V. Depreciation on capital cost..	1,031			50,491
VI. Interest on capital cost..	2,480	II. Miscellaneous ..		222
VII. Repairs to buildings ..	778			
VIII. Miscellaneous ..	3,570			
Net profit for the year..	30,743			
	50,713			50,713

Trading account of Kirwatti Sawmill for 1933-34.

Capital cost Rs. 21,387 + 7,659 = 29,046 — 4,030 = 25,016 — 11,118 = 13,898

Expenditure.	Rs.	Income.	Rs.	Rs.
I. Timber (unconverted) 71,597·46 c.ft.	24,914	I. Sales— Sale of sawn timber during the year 46,431·11 c.ft. ..	61,735	
II. General stores..	2,564	*Less*— Stock of sawn timber at the end of the previous year ..	— 16,630	
III. Establishment...	2,331			
IV. Labour ..	10,254	*Add*— Stock of sawn timber at the end of the year 6,195·22 c.ft.	7,357	
V. Depreciation on capital cost ..	939			52,462
VI. Interest on capital cost ..	1,499	II. Miscellaneous ..		840
VII. Repairs to buildings ..	83			
VIII. Miscellaneous ..	936			
Net profit for the year ..	9,782			
	53,302			53,302

Trading account of Mandurli Mill for 1933-34.

Capital cost Rs. 16,194 + 490 = 16,684 — 200 = Rs. 16,484 — 2,164 = 14,320.

Expenditure.		Income.		
	Rs.		Rs.	Rs.
I. Timber (unconverted) 26,174 c.ft...	7,201	I. Sales— Sale of sawn timber during the year 2,443·43 c.ft. ..	5,168	
II. General stores..	1,137			
III. Establishment ..	700	*Less*— Stock of sawn timber at the end of the previous year ..	—10	
IV. Labour ..	3,446			
V. Depreciation on capital cost..	784	*Add*— Stock of sawn timber at the end of the year 14,355·62 c.ft.	13,907	
VI. Interest on capital cost..	797			19,065
VII. Repairs to buildings ..	..			
VIII. Miscellaneous ..	2,176			
Net profit for the year..	2,824	II. Miscellaneous ..		..
	19,065			19,065

All the sawmills show a total net profit of Rs. 1,39,380 as against Rs. 2,04,715 of last year. The Dandeli mill shows an increase of Rs. 15,028 over the profits earned last year and this is due to better prices obtained for sawn wood supplied against indents, and sold by auction. The other sawmills show less profits than in the preceding year, the decrease being due to several causes, viz. (1) decreased output, (2) increase in the cost of production owing to limited work, (3) heavy curtailment of the indents for M.G. sleepers by the Railway, and consequent restriction of the outturn to small and less profitable sizes.

CHAPTER V.

FINANCIAL RESULTS.

(Forms Nos. 68, 69 and 70.)

The revenue and expenditure of the year compare with those of the last year and the average of the previous quinquennium 1928–29 to 1932–33 as follows :—

Circle.	Year.	Revenue.	Expenditure.			Total.	Surplus or deficit.	Percentage of surplus to gross revenue.
			Conservancy Maintenance and Regeneration.	Forest Capital Outlay.	Establishment.			
		Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	
Northern	1933–34	17,00,864	1,44,012	31,971	5,87,425	7,63,408	9,37,456	55·1
	1932–33	22,16,217	2,32,573	76,105	6,44,917	9,53,595	12,62,622	56·9
	Average.	21,81,373	3,03,623	99,423	6,88,183	10,91,229	10,90,144	50·0
Central	1933–34	10,48,727	75,308	7,103	5,87,114	6,69,525	3,79,202	36·2
	1932–33	9,81,254	70,941	4,444	5,38,016	6,13,401	3,67,853	37·4
	Average.	10,62,363	86,890	20,937	5,76,051	6,83,878	3,78,485	35·6
Southern	1933–34	20,91,808	7,19,616	20,503	5,55,573	12,95,692	7,96,116	38·1
	1932–33	23,31,205	9,11,378	25,027	5,50,032	14,86,437	8,44,768	36·2
	Average.	26,59,003	10,77,252	41,096	6,09,880	17,28,228	9,30,775	35·0
Sind	1933–34	5,85,186	21,554	4,306	2,94,599	3,20,459	2,64,727	45·2
	1932–33	4,42,142	13,524	4,807	2,90,229	3,08,560	1,33,582	30·2
	Average.	5,40,242	41,963	4,529	3,02,663	3,49,155	1,91,087	35·4
General Direction.	1933–34	16	97,527	....	68,348	1,65,875	— 1,65,859	..
	1932–33	14	1,24,646	....	67,829	1,92,475	— 1,92,461	..
	Average.	11	98,951	65	81,580	1,80,596	— 1,80,585	..
Forest Engineering.	1933–34	3,489	18,392	99	52,917	71,408	— 67,919	..
	1932–33	271	22,704	7	46,027	68,738	— 68,467	..
	Average.	706	28,352	— 6,900	48,472	69,924	— 69,218	..
Total Presidency.	1933–34	54,30,000	10,76,409	63,982	22,45,976	32,86,367	21,43,723	39·4
	1932–33	59,71,103	13,75,766	1,10,390	21,37,050	36,23,206	23,47,897	39·3
	Average.	64,43,698	16,37,031	1,59,150	23,06,829	41,03,010	23,40,688	36·3
Difference between	1933–34 and 1932–33	— 5,41,013	— 2,99,357	— 46,408	+ 8,926	— 3,36,839	— 2,04,174	..

N.B.—The above figures are exclusive of expenditure under—B-VI (*a*)-Work advances—as this expenditure is recoverable.

The gross revenue of the year was Rs. 54,30,090 and the expenditure was Rs. 32,86,367 as against Rs. 59,71,103 and Rs. 36,23,206 respectively. The net result was that the surplus declined from Rs. 23,47,897 to Rs. 21,43,723. The decrease in revenue and surplus is shared by the Northern and Southern Circles and is partly counterbalanced by increases in the Central and Sind Circles.

The heavy drop in the gross revenue of the Northern Circle was entirely due to the transfer of the Surat Dangs to the Government of India. But for this transfer the Circle would have recorded an increase both in gross revenue and surplus due to the sale of a number of coupes containing old standards in the three Thana Divisions.

Although there was a decrease of Rs. 2,39,397 in the gross revenue of the Southern Circle as compared with that of the previous year, the surplus dropped by only Rs. 48,652 due to the expenditure having been kept down to as low a level as possible. The main causes for the decrease in this Circle were (*1*) exploitation of a smaller area of the Halyal Teak Pole coupes in accordance with the provisions of the revised draft Plan, (*2*) sale of a smaller number of coupes and compartments, (*3*) realization of less revenue from bamboos and the Alnavar Dandeli Railway, (*4*) reduced supply of sleepers to Railways, and (*5*) general trade depression resulting in low prices at the timber sales.

The small increase in the Central Circle over the previous year's figure was due partly to the addition of the Mandvi Sub-Division and partly to better prices obtained for coupes in the Khandesh Divisions.

The better results in the Sind Circle were due to more satisfactory prices realized for coupes, deadwood and thinnings contracts and to more lands granted for rabi cultivation in *Kachas* due to favourable *abkalani*.

The fall in expenditure under B-Conservancy, Maintenance and Regeneration was mainly due to lower contract rates and curtailment of departmental works in favour of standing sales in the Southern Circle and to the transfer of the Dangs from the Northern Circle.

Expenditure under 52-A Forest Capital Outlay was greatly curtailed by postponing works and restricting expenditure to urgent items only. The amount spent during the year was only Rs. 63,982 as against Rs. 1,10,390 in the previous year.

The small increase in expenditure under C-Establishment was mainly due to annual increments of pay granted to officers and subordinates.

The sources of revenue are analysed and compared below :—

Sources and heads.	General Direction.	Forest Engineering.	Northern Circle.	Central Circle.
REVENUE.	Rs.	Rs.	Rs.	Rs.
Ia and IIa—Timber ..	....	....	13,65,871	3,93,768
Ib and IIb—Firewood ..	....	....	21,880	86,337
Ic and IIc—Bamboos ..	....	....	17,296	15,330
Id—Sandalwood ..	....	....	....	3,237
IId—Grazing and grass ..	....	....	1,83,002	3,97,055
Ie and IIe—Other produce ..	....	....	29,557	37,552
III—Drift and confiscated forest produce ..	....	....	885	1,300
IV—Forest not managed by Government ..	....	....	1,886	15,972
V—Miscellaneous ..	16	3,489	81,814	1,05,072
Refunds	....	....	— 1,327	— 6,896
Total ..	16	3,489	17,00,864	10,48,727

Sources and heads.	Southern Circle.	Sind Circle.	Total.		Increase or decrease.
			1933–34.	1932–33.	
REVENUE.	Rs.	Rs.	Rs.	Rs.	Rs.
Ia and IIa—Timber ..	15,41,841	68,702	33,70,182	40,16,242	— 6,46,060
Ib and IIb—Firewood ..	1,79,283	3,55,134	6,42,634	5,07,286	+ 1,35,348
Ic and IIc—Bamboos ..	62,138	..	94,764	1,54,364	— 59,600
Id—Sandalwood ..	1,03,561	..	1,06,798	1,06,833	— 35
IId—Grazing and grass ..	87,949	56,750	7,24,756	6,60,175	+ 64,581
Ie and IIe—Other produce ..	36,651	16,311	1,20,071	1,18,289	+ 1,782
III—Drift and confiscated forest produce ..	710	48	2,943	3,039	— 96
IV—Forest not managed by Government	10	..	17,868	25,405	— 7,537
V—Miscellaneous ..	81,141	89,517	3,61,049	3,99,853	— 38,804
Refunds	— 1,476	— 1,276	— 10,975	— 20,383	+ 9,408
Total ..	20,91,808	5,85,186	54,30,090	59,71,103	— 5,41,013

The heads of expenditure are analysed and campared below :—

Sources and heads.	General Direction.	Forest Engineering.	Northern Circle.	Central Circle.	Southern Circle.
1	2	3	4	5	6
EXPENDITURE.	Rs.	Rs.	Rs.	Rs.	Rs.
B—Conservancy Maintenance and Regeneration.					
52-A, *Capital Outlay on Forests.*					
I—Timber, etc., extracted by Government Agency ..	..	15,908	21,544	10,916	5,76,445
II—Timber, etc., extracted by consumers or purchasers	..	..	33,250	12,531	4,813
III—Maintenance, Repairs and Renewals, 52-A-III, A-IV and A-V ..	..	2,523	51,922	20,972	99,650
IV—Conservancy and Regeneration and 52-A-I and II	..	..	39,265	17,905	49,479
V—Miscellaneous ..	53	60	30,002	20,087	9,732
Interest	97,474	..	..	..	..
Total ..	97,527	18,491	1,75,983	82,411	7,40,119

Sources and heads.	Total.			Increase or decrease.
	Sind Circle.	1933–34.	1932–33.	
1	7	8	9	10
EXPENDITURE.	Rs.	Rs.	Rs.	Rs.
B—Conservancy, Maintenance and Regeneration.				
52-A *Capital Outlay on Forests.*				
I—Timber, etc., extracted by Government Agency ..	1,048	6,25,861	8,70,984	—2,45,123
II—Timber, etc., extracted by consumers or purchasers	133	50,727	57,855	— 7,128
III—Maintenance, Repairs and Renewals, 52-A-III, A-IV and A-V ..	12,472	1,87,539	2,22,785	— 45,246
IV—Conservancy and Regeneration and 52-A-I and II	5,998	1,12,647	1,17,415	— 4,768
V—Miscellaneous ..	6,209	66,143	82,550	— 16,407
Interest	....	97,474	1,24,567	— 27,093
Total ..	25,860	11,40,391	14,86,156	—3,45,765

Sources and heads.	General Direction.	Forest Engineering.	Northern Circle.	Central Circle.	Southern Circle.
1	2	3	4	5	6
C—ESTABLISHMENT.	Rs.	Rs.	Rs.	Rs.	Rs.
I—Pay of Officers ..	38,599	18,707	98,131	1,05,002	98,227
II—Pay of Establishment ..	12,634	18,474	3,94,429	3,86,382	3,78,550
III—Allowances ..	9,150	11,843	79,216	83,133	63,482
IV—Contingencies ..	1,601	3,893	15,649	14,253	15,314
V—Establishment charges payable to Central Government	6,595	..	..	..	..
Recoveries from Raisingpur	..	..	..	—1,656	..
Loss by Exchange ..	—131	..	..	..	..
Total ..	68,348	52,917	5,87,425	5,87,114	5,55,573
Grand Total ..	1,65,875	71,408	7,63,408	6,69,525	12,95,692
Surplus, 1933–34 ..	—1,65,859	—67,919	+9,37,456	+3,79,202	+7,96,116
Surplus, 1932–33 ..	—1,92,461	—68,467	+12,62,622	+3,67,853	+8,44,768
Difference ..	+26,602	+548	—3,25,166	+11,349	—48,652

Sources and heads.	Sind Circle.	Total.		Increase or decrease.
		1933–34.	1932–33.	
1	7	8	9	10
C—ESTABLISHMENT.	Rs.	Rs.	Rs.	Rs.
I—Pay of Officers ..	76,708	4,35,374	4,04,485	+ 30,889
II—Pay of Establishment ..	1,57,389	13,47,858	13,60,164	— 12,306
III—Allowances ..	43,207	2,89,931	2,96,998	— 7,067
IV—Contingencies ..	17,295	68,005	71,204	— 3,199
V—Establishment charges payable to Central Government	....	6,595	6,380	+ 215
Recoveries from Raisingpur	....	—1,656	—1,796	+ 140
Loss by Exchange ..	....	— 131	— 385	+ 254
Total ..	2,94,599	21,45,976	21,37,050	+ 8,926
Grand Total ..	3,20,459	32,86,367	36,23,206	—3,36,839
Surplus, 1933–34 ..	+2,64,727	+21,43,723	....	....
Surplus, 1932–33 ..	+1,33,582	....	+23,47,897	....
Difference ..	+1,3141	....	....	—2,04,174

STATEMENT.

MO-1 Bk E 63—3a

The revenue and expenditure are further analysed as follows :—

Class.	General Direction and Forest Engineering.		Northern Circle.		Central Circle.	
	Rs.	Per cent.	Rs.	Per cent.	Rs.	Per cent.
REVENUE.						
Major produce			13,87,751	82	4,83,341	46
Minor produce			2,29,855	13	4,49,937	43
Miscellaneous	3,505	100	84,585	5	1,22,345	12
Refunds			— 1,327	..	— 6,896	— 1
Total ..	3,505	..	17,00,864	..	10,48,727	..
EXPENDITURE.						
CONSERVANCY, MAINTENANCE, REGENERATION AND 52-A.						
Extension and constitution ..	..	..	1,444	1	19	..
Improvement	290	..	83,434	48	37,567	46
Exploitation	18,141	16	79,867	45	33,596	41
Miscellaneous	113	..	11,238	6	11,229	13
Interest	97,474	84	..	..	..	..
Total ..	1,16,018	..	1,75,983	..	82,411	..
ESTABLISHMENT.						
Administrative	65,282	54	39,746	7	41,864	7
Executive	52,917	44	1,57,894	27	1,75,850	30
Protective	3,066	2	3,89,785	66	3,69,400	63
Total ..	1,21,265	..	5,87,425	..	5,87,114	..

Class.	Southern Circle.		Sind Circle.		Total.	
	Rs.	Per cent.	Rs.	Per cent.	Rs.	Per cent.
REVENUE.						
Major produce	18,24,685	87	4,23,836	72	41,19,613	76
Minor produce	1,86,738	9	73,061	13	9,39,591	17
Miscellaneous	81,861	4	89,565	15	3,81,861	7
Refunds	— 1,476	..	— 1,276	..	— 10,975	..
Total ..	20,91,808	..	5,85,186	..	54,30,090	..
EXPENDITURE.						
CONSERVANCY, MAINTENANCE, REGENERATION AND 52-A.						
Extension and constitution ..	..	..	9	..	1,472	..
Improvement	1,46,763	20	17,028	66	2,85,082	25
Exploitation	5,83,674	79	2,614	10	7,17,892	63
Miscellaneous	9,682	1	6,209	24	38,471	3
Interest	..	..	..	..	97,474	9
Total ..	7,40,119	..	25,860	..	11,40,391	..
ESTABLISHMENT.						
Administrative	47,630	8	48,217	16	2,42,739	11
Executive	1,42,643	26	1,20,439	41	6,49,743	30
Protective	3,65,300	66	1,25,943	43	12,53,494	59
Total ..	5,55,573	..	2,94,599	..	**21,45,976**	..

The expenditure incurred from the provision under 52-A, Capital Outlay on Forests, subsequently charged to Revenue is as shown below :—

Head.	General Direction.	Forest Engineering.	Northern Circle.	Central Circle.	Southern Circle.	Sind Circle.	Total.
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
I. Forest Surveys	..	..	..	..	..	..	..
II. Organization, improvement and extension.	..	..	1,444	19	756	9	2,228
III. Communication and buildings	..	..	30,768	6,448	19,540	3,472	60,228
IV. Railways and Tramways ..	..	..	..	..	..	..	..
V. Dead stock, stores, tools and plant ..	..	99	2,299	636	207	825	4,066
Deduct—Receipts and recoveries on capital account ..	..	..	—2,540	..	..	..	—2,540
Total ..	..	99	31,971	7,103	20,503	4,306	63,982

The outstandings on account of revenue at the commencement and close of the year were :—

Circle.	On 1st April 1933.	On 31st March 1934.
	Rs.	Rs.
Northern	19,307	61,263
Central	3,189	8,468
Southern	2,49,546	1,38,226
Sind	1,58,463	1,37,419
Total ..	4,30,505	3,45,376

A sum of Rs. 8,003 was written off under proper authority in the Northern, Central and Southern Circles.

The outstandings on account of contractors and disbursers were as follows :—

Circle.	On 1st April 1933.	On 31st March 1934.
	Rs.	Rs.
Northern	1,155	30
Central	20	20
Southern	30,388	23,112
Sind	363	733
Total ..	31,926	23,895

CHAPTER VI.

RESEARCH AND EXPERIMENT.

Under the direct control of the Chief Conservator's office there were 11 subjects under investigation during the year while problems of purely local interest were taken up for investigation by the Divisional Forest Officers concerned under the general control of their Conservators.

The work done and observations made are briefly described below :—

NATURAL REGENERATION.

Sandal (Santalum album).

At the suggestion of the Silviculturist, Forest Research Institute, Dehra Dun, 100 trees in each of the plots 28A and 28B have been kept under observation for the purpose of confirming the results obtained in connection with the Research subject No. 28—Effect of early burning on sandalwood growth and regeneration. Plot 28A has been and will be rigidly fire-protected and plot 28B early burnt.

ARTIFICIAL REGENERATION.

Rosha grass (Cymbopogan Martinii).

Subject No. 12.—Artificial propagation of rosha grass (West Khandesh).

The crop of *rosha* raised on the 7 acre plot was sold for Rs. 51 after blanks had been filled up with fresh tussocks at a cost of Rs. 20. It was not possible to collect figures of yield.

Hirda (Terminalia chebula).

Subject No. 13.—Propagation of hirda (Poona and Satara).

With a view to discovering whether *hirda* can be propagated successfully by means of stump planting, the seedlings raised in nurseries in the Poona and Satara Divisions last year were to be "stumped" and planted out in the rains of the year under report. In the Poona Division 605 stumps put out in the rains produced shoots of which 598 were surviving in January 1934. These are reported to be healthy and to vary between 6″ and 10″ in height.

In the Satara Division no stump planting was carried out, owing, it is reported, to the seedlings being too small for the purpose.

Khair (Acacia catechu).

As reported last year the seedlings raised in nurseries in the North, East and West Khandesh Divisions will be utilised for stump planting in the rains of 1934.

Thinnings and Cleanings.

Teak.

Subject No. 4.—*Effect of thinning teak coppice at different ages* (*East Thana*).

Remeasurements of trees in 4 plots were recorded in December 1932 and of the remaining 4 plots in January 1934.

Subject No. 5.—*Effect of different degrees of thinnings in teak plantations of different ages* (*West Nasik, West Thana and Belgaum*).

During the year orders were issued to alter the treatment accorded hitherto to the plots in the Belgaum Division. These plots will in consequence yield results which will differ from those obtained in West Nasik and West Thana and will be of purely local interest.

Remeasurement of trees in the plots in the West Thana and West Nasik Divisions was recorded after the close of the year.

Subject No. 34.—*Effect of different degrees of thinnings in teak plantations of different ages* (*Kanara N.D., E.D. and W.D.*).

There is nothing to record this year.

Babul (*Acacia arabica*).

Subject No. 8.—*Increment of babul under different degrees of thinning* (*Hyderabad, Sind*).

In compliance with the instructions received from the Silviculturist, Forest Research Institute, Dehra Dun, girth and diameter measurements were recorded again this year.

Miscellaneous.

Sandal.

Subject No. 7.—*Annual girth increment of sandal* (*Belgaum and Dharwar-Bijapur*).

There is nothing to record this year.

Subject No. 32.—*Correlation existing between the outer girth increment and heartwood increment of sandal* (*Dharwar-Bijapur*).

Remeasurements are not due till December 1934 and May 1935 in the two plots under observation.

Bahan (Populus euphratica).

Subject No. 10.—To determine the vitality of bahan coppice stools and the number of profitable rotations through which they are able to pass before complete deterioration (Shikarpur).

It having been established that when allowance has been made for differences in soil, degree of inundation and variation of market rates and demands, the economic age for cutting over *bahan* coppice in Upper Sind is approximately at 6 years, all the *bahan* sample plots were ordered to be retained on a 6 year rotation to determine the vitality of the coppice stools and the number of profitable rotations through which they are able to pass before complete deterioration.

So far plots 10A and 10B have been cut in the 2nd rotation. The Divisional Forest Officer, Shikarpur, has observed that in these two plots a certain amount of lowering of vitality of the stumps has taken place as the yield in the form of rafters is much higher in the lowest class with a considerable fall in yield from the larger sized girth classes.

Sawar (Bombax malabaricum).

Subject No. 33.—The determination of the rate of increment of sawar (Panch Mahals).

In view of the increasing demand in recent years for sawar due to the development of the match industry, an investigation to gain some knowledge of the rate of growth of this species was started in the year 1929-30 and 20 sound and healthy trees in each of the 6″ girth classes from over 6″ to 48″ girth in two localities, i.e. Godhra and Halol Ranges in the Panch Mahals Division, were serially numbered and marked with crosses at 4′-6″ from the ground to ensure the point of measurement. The girth of all the trees was then measured and recorded and four consecutive remeasurements at interval of one year were taken, the trees in the several girth classes being reclassified at each remeasurement.

The average annual increment of each girth class obtained at each remeasurement was plotted separately and an even curve drawn for each locality. The mean annual rate of increment derived therefrom is given below :—

Girth classes	I	II	III	IV	V	VI	VII	Total	Average Annual increment
Average girth	9″	15″	21″	27″	33″	39″	45″		
	In.	In.	In.	In.	In.	In.	In.	In.	Inches
Godhra ..	1·03	1·23	1·25	1·19	1·09	0·90	0·65	7·34	1·05
Halol ..	1·18	1·38	1·42	1·36	1·23	1·00	0·75	8·32	1·19
							Total ..		2·24
								Mean average annual increment ..	1·12

From the above figures it emerges that the rate of increment of *Bombax malabaricum* steadily rises till the tree reaches an average girth of 21″ after which it gradually declines, but does not fall below the mean average annual increment till a girth of 36″ is exceeded ; in other words the economic exploitable age of *Bombax malabaricum* in the Panch Mahals Division is (36 ÷ 1·12) 30 years roughly in round figures.

Miscellaneous Species.

Subject No. 16.—*Effect of improvement fellings on diameter growth (Dangs—Surat).*

First and second remeasurements of trees in both the plots were taken in December 1930 and December 1933 respectively. The results obtained are given below :—

Plot No.	Total diameter at the original measurement.	Diameter increment.		Percentage of increment.		Remarks.
		1930.	1933.	1930.	1933.	
	Inches	Inches	Inches	Inches	Inches	
16A	800·61	113·05	96·33	14·1	10·5	Improvement felled plot.
16B	1,334·51	55·84	61·04	4·1	4·3	Control plot.

Experiments carried out by Divisional Forest Officers.

In the North and West Khandesh Divisions plots containing mixed growth, divided into 2 sub-plots, one control plot and the other subjected to light improvement fellings, are under observation of the Divisional Forest Officer, Working Plans, Central Circle, since the year 1928. The remeasurements recorded in 1933 have yielded the following results :—

Division.	Plot.	Area.	Total basal area.		Increase.	Percentage of increase.
			Original measurement 1928.	Re-measurement 1933.		
		Acres	Sq. ft.	Sq. ft.	Sq. ft.	
West Khandesh	Improvement felled.	2·5	127·47	138·32	16·85	18·2
	Control ..	2·5	115·86	127·03	11·17	9·6
North Khandesh.	Improvement felled.	1·0	34·5	41·4	6·9	20·0
	Control ..	1·0	45·25	51·74	6·49	14·3

In the Poona Division a plot of 25 acres was originally established to ascertain whether *babul* of suitable size for fuel could not be obtained in areas above flood level within a shorter period than the existing rotation of 40 years. But the object was subsequently changed to study the

result of heavy thinning as compared with light thinning. With this object in view the plot was divided into two halves ; one half was very heavily thinned, the spacing being equivalent approximately to the height of the tree, and the other half lightly thinned. It may be mentioned that height growth is poor in this locality.

Remeasurements were taken in 1933-34 and the results obtained are tabulated below :—

	Heavily thinned.	Lightly thinned.
Number of trees at the time of original measurement ..	44	104
Total girth at original measurement ..	227·93″	426·75″
Number of trees at the time of remeasurement ..	40	87
Total girth at remeasurement	431·75″	870·00″
Increase ..	203·82″	443·25″
Percentage of increase ..	89·4″	103·8″

Further observation is necessary to draw definite conclusions as to the merits of heavy thinning as opposed to light thinning.

The experiments carried out in the Kanara Northern Division during the last three years in respect of early planting of teak stumps after the April and May showers now definitely show that given a few fairly good showers during the last fortnight of April or early in May, the planting can be carried out with impunity any time immediately afterwards.

Propagation of sandalwood under the agri-cum-forestry system was attempted in the Khanapur range of the Belgaum Division with disappointing results, but in the Patne round of the same division the results of a similar attempt on an area of 44 acres were very gratifying, where some 7,547 teak and 1,413 sandalwood seedlings are reported to be surviving.

Severe frost in January caused considerable damage to the 1931-32 *shivani* plants in the Rahuja experimental garden, Shikarpur division, Sind. It was apprehended that all the plants, some of which were 15 ft. in height, had been killed outright, but by the end of March 1934 signs of lingering life manifested themselves and although, no complete revival occurred, shoots, 3 or more in number, from near the base began to appear. The dead stems were then sawn back at a height of about six inches from the ground. The maximum height of the new shoots is about 5 feet.

Seeds of 11 exotic species were tried in the Rahuja garden with disappointing results, while bamboo rhizomes and several tree species from the Presidency fared no better in the Nasrat, Amrote and Kasimshah experimental plots in the Larkana division. Abnormal rain in August flooded the Nasrat plot and destroyed almost all the seedlings raised with the exception of a few *khair* which escaped through being on high level ground.

Mulberry and *tali* seed sown along trenches in 5 acre plots in Amrote and Kasimshah yielded satisfactory results and the seedlings though affected by frost are said to be in a flourishing condition. *Shivan* raised in 1932 in the Nasrat nursery recovered remarkably well from the effects of the January frost.

In the Hyderabad division an additional set of 9 sample plots has been laid out in the Manjhand forest for comparing the effects of different grades of thinnings in *babul* crops. This experiment is being controlled by the Imperial Silviculturist.

With the object of devising a ready and reliable method of estimating the yield of standing crops of *kandi* (*Prosopis spicigera*), the predominant species of Upper Sind, 3 sample plots were laid out in the Sukkur division. The trees were numbered serially and their measurements recorded. The formula adopted for estimating the yield in 1,000 cubic feet stacks was $\frac{H-5}{10} \times D$ where H = average top height and D = density. Measurement of actual yield after conversion proved that the formula adopted errs within 10 per cent. *plus* or *minus* of the actual outturn, as the following figures show :—

	Estimate as per formula.	Actual outturn.	Difference.
			Per cent.
Rohri range	1,680	1,775	— 5
Pano Akil range	2,240	2,062	+ 8
Ghotki range	1,710	1,844	— 8

The eradication of prickly pear by means of the cochineal insect was successfully attempted in the Poona Division where at a cost of 49 Rs. 58 coupes in the *babul* forests of the Poona and Dhond ranges were rid of this pest. Similar good results were obtained in the Dharwar Bijapur division where free use is being made, both by the general public and the forest department, of this means of getting rid of prickly pear.

In conclusion it must be admitted that the absence of a whole time Research Officer has resulted in many experiments proving valueless. The Chief Conservator is nominally in control of all research subjects, but in actual practice it is impossible for him to exercise anything approaching effective control. Unfortunately the cadre of the superior staff is now inadequate to deal with the ordinary routine of inspection duties and consequently no officer can be spared for Research work.

This is admittedly a very short sighted policy, and will be reflected either in the gradual reduction of the Forest Capital or at any rate in postponing a very possible increase in the Forest Capital, as many forest problems of regeneration, thinnings etc. still require elucidation. Till the Forest cadre is increased the present unsatisfactory conditions must unfortunately continue.

G. P. Z. P. 1931

(5). NASRAT MULBERRY PLANTATION

Mulberry lines alternating with tali. Height about 15 feet.

CHAPTER VII.

ADMINISTRATION.

The *post of Chief Conservator* was held by Mr. P. E. Aitchison from 1st *April 1933 to 30th March* 1934 and by the writer of this report for 1 day *only, viz. 31st March* 1934. The title of C.I.E. was conferred on Mr. *Aitchison after the* close of the year.

The charge of the Circles was held by the following officers :—

Northern Circle.. Mr. R. W. Inder from 1st April 1933 to 15th August 1933.
Mr. H. W. Starte from 16th August 1933 to 31st March 1934.

Central Circle .. Mr. H. W. Starte from 1st April 1933 to 14th August 1933.
Mr. P. E. Aitchison from 15th August 1933 to 18th August 1933.
Mr. R. W. Inder from 19th August 1933 to 31st March 1934.

Southern Circle .. Mr. D. B. Sothers from 1st April 1933 to 31st October 1933.
Mr. A. C. Hiley from 1st November 1933 to 31st March 1934.

Sind Circle .. Mr. C. E. L. Gilbert from 1st April 1933 to 22nd March 1934.
Mr. J. B. T. Brooks from 23rd March 1934 to 31st March 1934.

Forest Engineering Branch. Mr. R. V. Alexander from 1st April 1933 to 22nd March 1934.
Mr. T. K. Mirchandani from 23rd March 1934 to 31st March 1934.

Divisional charges were held by the officers mentioned below :—

Division.	Name of officer.	From	To
Panch Mahals ..	Mr. S. P. Pandya ..	Throughout the year.	
Surat ..	Mr. E. O. Sampson..	1st April 1933 ..	30th June 1933.
North Thana ..	Mr. R. J. Smith ..	Throughout the year.	
East Thana ..	Mr. R. F. Sandeman.	1st April 1933 ..	24th January 1934.
	Mr. E. K. Kotwal ..	25th January 1934 ..	31st March 1934.
West Thana ..	Mr. G. S. Singh ..	Throughout the year.	
East Nasik ..	Mr. V. A. N. Sausman	Throughout the year.	
West Nasik ..	Mr. H. P. W. Davis	Throughout the year.	
Working Plans ..	Mr. H. J. C. Millett..	1st April 1933 ..	6th November 1933.
	Mr. H. W. Starte ..	7th November 1933	31st March 1934.
Gurcharan Officer, Thana ..	Mr. F. X. Saldanha	Throughout the year.	
East Khandesh ..	Mr. J. Petty ..	1st April 1933 ..	7th November 1933.
	Mr. H. J. C. Millett	8th November 1933	31st March 1934.

Division.	Name of Officer.	From	To
North Khandesh.	Mr. W. de C.Walsh..	1st April 1933 ..	14th March 1934.
	Mr. D. V. Phatak ..	15th March 1934 ..	31st March 1934.
West Khandesh..	Mr. H. C. Holmes ..	1st April 1933 ..	6th November 1933.
	Mr. F. A. B. Coelho..	7th November 1933	31st March 1934.
Poona ..	Mr. R. A. Shirali ..	Throughout the year.	
Kolaba ..	Mr. E. T. C. Vas ..	1st April 1933 ..	4th December 1933.
	Mr. Y. R. Divekar ..	5th December 1933	31st March 1934.
Satara ..	Mr. V. N. Hasabnis..	Throughout the year.	
Working Plans C. C.	Mr. J. A. Singh ..	1st April 1933 ..	16th January 1934.
	Mr. H. J. C. Millett.	17th January 1934 ..	12th February 1934.
	Mr. J. A. Singh ..	13th February 1934	31st March 1934.
Kanara N. D. ..	Mr. S. N. J. Ratnagar	Throughout the year.	
Kanara E. D. ..	Mr. J. Walker ..	1st April 1933 ..	2nd September 1933.
	Mr. S. N. Kesarcodi.	3rd September 1933	21st September 1933.
	Mr. J. Walker ..	22nd September 1933	31st March 1934.
Belgaum ..	Mr. J. B. T. Brooks.	1st April 1933 ..	14th March 1934.
	Mr. V. S. Kanetkar..	15th March 1934 ..	31st March 1934.
Dharwar-Bijapur	Mr. S. N. Kesarcodi.	Throughout the year.	
Working Plans S. C.	Mr. D. B. Sothers ..	1st April 1933 ..	31st October 1933.
	Mr. A. C. Hiley ..	1st November 1933	19th December 1933.
	Mr. E. A. Garland ..	20th December 1933	31st March 1934.
Sukkur ..	Mr. N. C. Ramchandani.	Throughout the year.	
Shikarpur ..	Mr. M. L. Khanna ..	Throughout the year.	
Larkana ..	Mr. Abdul Rahim ..	Throughout the year.	
Hyderabad ..	Mr. R. P. Dalley ..	1st April 1933 ..	12th July 1933.
	Mr. G. J. Ramchandani.	13th July 1933 ..	24th October 1933.
	Mr. R. P. Dalley ..	25th October 1933 ..	31st March 1934.
Karachi ..	Mr. E. S. B. Tavener	Throughout the year.	
Working Plans Sind.	Mr. C. G. Abichandani.	Throughout the year.	

There were as usual some changes among Divisional Forest Officers chiefly owing to absence of officers on leave and on deputation for military training.

At the close of the year the number of officers attached to Divisions as Assistants or Sub-Divisional Forest Officers was 7, of whom one belonged to Class I and six to Class II.

Messrs. V. R. Damle and B. A. Brahme, Assistant Conservators of Forests, retired from service with effect from 10th January 1934 and 18th May 1933 respectively, having completed 6 years and 10 months service respectively in Class II.

Four Rangers, *viz.* Messrs. L. V. Gonsalves, K. S. Ghotgalkar, M. S. Kalbag and D. G. Sane were promoted to the Bombay Forest Service Class II during the year.

The abolition of the Kanara Western Division in the Southern Circle was brought into effect from 1st July 1933 by redistributing the areas between Kanara Southern and Northern Divisions. The reconstituted Kanara Southern Division has been designated Kanara Western Division, and its headquarters fixed at Karwar as sanctioned in Government Resolution, Revenue Department, No. 10082/28, dated 31st May 1933.

In the Northern Circle the Dangs portion of the former Surat Division was transferred to the Government of India, and the Mandvi Sub-Division to the Central Circle whilst the Baragaon Dangs were added to the East Nasik Division.

As the Tatta Range in the Sind Circle was found to be too extensive and unwieldy for one Range Forest Officer to manage efficiently, necessary redistribution of the forests pertaining to four Ranges viz. Tatta, Sujawal, Mulchand and Kathar was made with effect from 1st April 1933 whereby a new Jerruck Range was created and the existing Mulchand Range was abolished. This redistribution was administratively of great importance involving no expenditure and has proved satisfactory.

Subordinate and Clerical Establishments.

Five new Rangers trained at the Madras Forest College, Coimbatore, joined service during the year. No Ranger recruits were selected for the course of 1934-36 during the year.

The forest class at Mandvi in the Northern Circle was held for a period of 6 months. 26 men joined the class, 9 from the Northern Circle, 12 from the Central Circle and 5 from Indian States. Of these 20 completed the course and passed successfully. 6 men had to be sent back, 3 on account of their prolonged absence due to illness and 3 on account of their inability to follow the course. Training classes for young Foresters and Guards were continued as usual in the Southern Circle. Out of 14 candidates selected, 9 passed out successfully.

The scales of pay of the subordinate protective and clerical establishments were revised with effect from 1st January 1934, *vide* Government Resolution, Finance Department, No. 150/33, dated 28th December 1933. No change was made in the present rates of pay of the protective establishment except that a new grade of Rs. 45 was created for Foresters. The scales of pay of the clerical establishment have been reduced and made applicable, for the present, to new entrants who joined service on or after 4th August 1931.

Casualties and Punishments.

Particulars.	General Direction.	Northern Circle.	Central Circle.	Southern Circle.	Sind Circle.	Total.	
						1933-34.	1932-33.
1 Retirements ..	..	37	27	23	8	95	81
2 Deaths ..	..	11	12	13	7	43	35
3 Resignations ..	..	7	4	1	7	19	22
4 Degradations ..	..	13	13	6	1	33	45
5 Prosecutions ..	..	3	..	..	2	5	2
6 Dismissals, removals etc.	..	21	4	4	16	45	25
Total ..	..	92	60	47	41	240	210

The forest staff as usual suffered severely from malaria, particularly in Kanara, North Thana, East Thana and West Nasik.

The work of Rangers and other subordinate protective and office establishments is reported to be satisfactory on the whole.

Two forest guards of North Khandesh Division, who were prosecuted by some Mevathis for illegally impounding their cattle, were convicted by the Magistrate whose decision was upheld in the appeal. One Beat Guard of the Poona Division was assaulted and the offenders were prosecuted and convicted. Two men of Jawalebaleshwar in Poona Division, who obstructed the impounding of 100 cattle and 75 sheep, were prosecuted and convicted. A man from Ghodnadi who impersonated a forest guard was also prosecuted and convicted.

A Ranger and a retired forest guard of East Nasik Division are being prosecuted, the former on a charge of misappropriation of grazing fees and receiving illegal gratification in giving out plots for inforest cultivation, and the latter on a charge of misappropriation of grazing fees. The cases are pending in the Court. A Forester in the East Thana Division is also being prosecuted on a charge of criminal breach of trust. This case is also pending. Another Ranger in the Hyderabad Division was prosecuted on a charge of having offered illegal gratification to a clerk in the Divisional Forest Office. He was acquitted by the Magistrate. An appeal has been filed in the Court of the Judicial Commissioner of Sind against the order of acquittal and the same is pending.

Inspection and Tours.

The Chief Conservator toured in all the four Circles of the Presidency. The Divisional and other offices were inspected by the Conservators as usual and no serious irregularities were noticed.

Civil Suits.

Northern Circle.—The suit filed by Khan Bahadur Isa Sadik Sadwa against the resumption by Government of the forest lands given out to him for temporary cultivation was decided in favour of Government. Khan Bahadur Sadwa has preferred an appeal against the decision.

Central Circle.—The suit filed by the Khot of Gopalwat and his co-sharers for the refund of money recovered from his khoti share bill on account of illicit cuttings in Khoti forests was decided against Government. Out of the two appeals, one preferred by the Khot of Tisa and the other by a contractor, the former is pending and the latter was dismissed by the District Court, Thana.

Southern Circle.—A fresh civil suit was filed against Government by one Usmansab Sannababasab challenging the refusal of this department to grant a license for working 5 sandalwood trees alleged to have been purchased by him from a malki land-holder in Sirsi taluka. The suit is pending in the Court. An old suit filed by a contractor in 1932 was decided in favour of Government during the year. The four appeals,

one filed by Government and three by contractors, are pending in the courts.

Land Revenue Administration.

The Divisional Forest Officer, West Nasik, continued to function as Assistant Collector and Excise Superintendent of Peint taluka.

The Excise and Revenue Administration of the Akrani Mahal was managed by the Forest Department.

The revenue administration of Pal and few other villages in East Khandesh Division was continued by the Forest Department. A special officer has been appointed to recover the advances made by the Co-operative Society.

The Raisingpur Estate was managed by the Forest Department under the Court of Wards.

The three Forest Mahals of Dandeli, Kulgi and Virnoli in Kanara N. D. and the Mahal of Kirwatti in Kanara E. D. were as usual administered by the Forest Department. The villagers were contented and their relations with the department continued to be satisfactory.

Kumries.

The requirements for Kumri lands of the villagers of Gavali and Chikhale in Belgaum Division were met by grant of fresh areas in exchange for those complained of as uncultivable. The majority of the Kumri areas were inspected by the Divisional Forest Officer, Belgaum.

Village Panchayats.

Of the seven panchayats in Kanara N. D. those at Ghadiyal, Satmani and Jawalli were abolished under the orders of the Commissioner, Southern Division. The other four panchayats functioned satisfactorily.

A new panchayat was formed at Alvalli village in Kumta taluka in Kanara W. D. Work of reproduction has not yet been undertaken by the panchayat. The existing panchayats in Kanara W. D. are reported to be working satisfactorily.

CHAPTER VIII.

GENERAL.

The transfer of the Surat Dangs to the Government of India resulted in the diminution of the gross forest revenue of the Presidency by about 6 lakhs and of the surplus by about 2½ lakhs per annum. Though no difficulty was experienced in disposing of stocks in Depôts and standing timber, the prices realized were generally poor, particularly in the Southern Circle, due to the continuance of trade depression. The

business with the M. and S. M. Railway in the matter of sawn timber was smaller than usual owing, it is understood, to the extended use of concrete construction in new works. A small supply of timber in the log for wagon construction was made and it is hoped to extend this business.

The Conservator of Forests, Sind Circle, reports that Larkana town was glutted with fuel exported from the Khairpur State. About 50 camel loads of fuel, mostly illicitly cut or stolen from the reserved forests or Government waste lands, used to be brought to Larkana, under cover of Khairpur State transit passes issued by contractors, every fourth or fifth day during the fair weather and the same was sold at a cheap rate, with the result that the forest contractors of the Larkana Range were unable to dispose of their stocks of fuel. This state of affairs was brought to the notice of the Khairpur Durbar with a view to their taking proper action in the matter. The Durbar have issued orders to their Forest Officers to be more strict in the issue of transit passes for forest material and to satisfy themselves as far as possible that the material for which passes are granted is not the product of illicit fellings. The result of these orders is being watched. The real remedy for this state of affairs is to insist on Khairpur State forest contractors stacking their firewood for measurement before State passes are issued, and then only will it be possible for us to accept these passes to cover forest produce in transit through British territory, as by such action alone will the illicit trade in stolen fuel to Shikarpur and other places be checked. This remedy has been communicated to the Khairpur Durbar through the Commissioner in Sind.

Economies.—One post of Ranger IV grade remaining to be retrenched in the Northern Circle was abolished during the year on the occurrence of a vacancy. As a result of the abolition of Kanara W. D. 1 post of head clerk in Rs. 105-5-140 grade, 3 posts of clerk in Rs. 30-5-2-80 grade and 4 posts of peons were reduced. Another post of a clerk for Kodibag depôt was also abolished as a measure of economy.

Civil Disobedience Movement.—The movement is practically dead, but unauthorized fellings are reported to be still going on in the Sirsi Siddapur Range of Kanara Eastern Division as an aftermath most probably of the teachings of the Congress agents during the movement.

Thana Gurcharans.—The Gurcharan Officer continued to do forest settlement and educational work. The settlement work in 5 villages is still pending. The educational work which consists in giving tahal demonstrations, was continued in Kalyan and Dahanu talukas. The gurcharans in which tahal was lopped in these two talukas were closely inspected by him. The question of the supply and demand of tahal was carefully studied, and attempts were made to find out the best means of securing the co-operation of the agriculturists in regard to the conservancy of gurcharans. Panchas consisting of influential agriculturists were selected to regulate the lopping of tahal and to report offences. Problems connected with economic conditions, deficiency of water

supply, guineaworm, establishment of village school were also studied and recorded and the various problems connected with rural uplift were explained to the agriculturists. The existing privileges in reserved and protected forests were also explained to them.

Forest Advisory Committees.—A meeting of the Committee was held in the Panch Mahals but there were no subjects for discussion. Two meetings in Thana and one in Nasik were proposed to be convened but as no subjects were put up for discussion the meetings were not held.

In West Khandesh two meetings were held. The question of reducing the rates for *Anjan* leaves and supplying fodder free of charge was discussed and it was not found justifiable to grant these concessions. In East Khandesh one meeting was held but no serious grievances were brought to notice. It has been decided to allot some forest land in this Division for sowing with different sorts of grass seeds. The experiment is to be made by the Agricultural Inspector with the advice of the grass specialist. One meeting of the Committee was held in Kolaba at which the question of transit passes was discussed and the suggestion that selected literate Patels be authorized to issue passes for malki wood was accepted.

In the Southern Circle two meetings of the Committee were held, one in Kanara and the other in Dharwar. The subjects discussed in Kanara were of an ordinary character. In Dharwar 10 subjects were tabled of which one was beyond the scope of the Committee and another was discussed into a resolution that the Deputy Director of Agriculture should prepare a scheme for Gun clubs for the protection of crops from the damage of wild animals. With regard to the remaining subjects, satisfactory explanations were given, pointing out remedies in the existing rules and orders.

Gun Clubs.—Under the control of the Agricultural Department a " gun club " was organized at Arwatgi in Dharwar district for the protection of crops against wild pigs. Hunting and shooting of wild pig was allowed from 1st July to 31st December and the " club " killed 113 pigs during that period. Properly controlled the scheme has its advantages for the agricultural population. The Commissioner, S. D., in consultation with the Agricultural and this Department has issued instructions to encourage extension of gun clubs on the Arwatgi system in villages along the eastern border of the denser forest areas of Kanara, Dharwar and Belgaum districts.

Forest Cultivation and Forest Settlements.—In the Northern Circle the general condition of the settlements was satisfactory. The assessment recovered during the year was Rs. 19,789. A grant of 100 acres was made for cultivation in Zankaria village in the Panch Mahals bringing the area under inforest cultivation in that village to 571 acres. Proposals have been submitted to the effect that the whole forest area of the village be disforested, and that 600 acres be reserved for grazing, 591 acres granted to existing settlers to bring their holdings up to economic sizes

and the remaining 1,900 acres sold to backward classes (Charans, Bhils, Nayakdars, etc.) by close auction.

One new settlement was opened at Morzira in the East Khandesh Division and another at Hati in the West Khandesh Division. Three new settlements have been ordered to be opened at Bandyawad, Bhongara and Chirkana in the North Khandesh Division. The question of transferring four settelements, viz. Vardhana, Nagpur, Mhasala and Petha in the West Khandesh Division to the Revenue Department is under consideration. The annual assessment was recovered in all cases. The crops in the settlements were generally satisfactory except in the Satpuda where they were damaged by frost.

Cattle Breeding Farms and Societies.—The scheme for the establishment of a fodder and bull breeding farm at Zankaria in the Northern Circle, which was approved in Government Resolution, Revenue Department No. 1509, dated 31st May 1921, has been ordered to be abandoned in Government Resolution, Revenue Department, No. 2457/24, dated 19th February 1934. The cattle breeding society at Pimple in Jalgaon Range of East Khandesh has been doing well. The society at Gangapuri has returned the forest lands to this Department owing to insufficient funds and unsatisfactory results of the experiments. The area granted last year to Dr. V. H. Patil in North Khandesh for a model farm for cattle breeding, dairying etc. is being cleared.

Alnavar-Dandeli Railway.—The following table compares the revenue and expenditure of the above Railway for the two years 1933-34 and 1932-33 :—

Year.	Receipts.	Expenditure.	Surplus.
	Rs.	Rs.	Rs.
1933-34	44,698	43,895	+803
1932-33	47,401	40,412	+6,989

The net profit brought in by the Railway was less than in the previous year. This was due partly to increased expenditure on maintenance of structural works, hire and other charges, and partly to the fall in the revenue from goods traffic due to the limited demand for bamboos and from coaching traffic as a result of greater facility for travelling by motor buses.

Grass Storage under the Nine-year Monopoly Contract.—The purchaser of the grass at Godhra was again given an extension of period till 31st December 1934 to complete the contract. He paid for and removed 24,50,000 lbs. of grass out of 44,97,360 lbs. held in stock. The damaged fodder amounting to 5,16,540 lbs. was sold for Rs. 500.

As the purchaser of the grass at Dohad defaulted, the grass was resold at his risk and the resale resulted in a deficit of Rs. 11,914. The defaulter is reported to be insolvent; consequently the deposit of Rs. 2,397 paid by him is being credited as part recovery of the amount outstanding

against him and the balance will be written off under proper authority. The defaulter's grass and the grass still to be disposed of at Dohad has been sold at Rs. 1-12-0 per 1,000 lbs. The purchaser paid for and removed only 9,00,000 lbs. of grass by the end of the year.

The quantities on hand at the close of the year were :—

	Lbs.
Godhra Depôt	15,30,820
Dohad Depôt	80,25,125

Match Factories.—100 cartloads of matchwood were removed by the Gujerat Islam Match Manufacturing Co. from the Panch Mahals Division at the concession rate of 6 annas per cartload. The matchwood coupes in the North and West Thana Divisions were not sold for want of demand. A few cartloads of matchwoods were however sold at Rs. 1-8-0 per cartload from the last year's coupe in the West Thana Division.

Agricultural Show and Swadeshi Exhibition.—An agricultural show was held at Nasik in December 1933. Samples of forest products were exhibited at the show. A Swadeshi Exhibition was held at Satara in October 1933 and a forest stall was opened there. The exhibits placed in the stall are reported to have aroused much public interest.

Hunting and Shooting.—The revenue realized from shooting license fees was Rs. 8,680 as against Rs. 8,555 in the previous year. A sum of Rs. 205 was recovered in the Southern Circle as fine for breach of the game rules.

The following table shows the number of animals killed in Government forests during the year :—

Animals.	Northern Circle.	Central Circle.	Southern Circle.	Total.
Tiger	1	9	20	30
Panther	24	38	31	93
Bison	....	....	25	25
Sambhar	1	7	6	14
Cheetal	1	6	5	12
Wild pig	2	77	1	80
Wild dogs	....	2	1	3
Wild elephants	....	....	28	28
Bear	3	8	7	18
Barking deer	....	3	....	3
Nilgai	....	8	....	8
Hyena	....	2	....	2
Black buck	1	1	....	2
Bhekar (4-horned antelope) ..	1	....	....	1
Chinkara	....	3	....	3
Total ..	34	164	124	322

Mr. P. N. Bhide, M.Ag., Assistant Director of Agriculture, and his shikaris shot 27 wild pigs in the forest of the Poona Division during the period from 15th May 1933 to 31st March 1934. In the Satara Division 15 wild pigs were shot by one Mr. Piloba Dhondiba who was granted permission to shoot these animals.

Rewards paid by the Revenue Department for destroying noxious animals in the Southern Circle amounted to Rs. 1,321-8-0 as shown below :—

	Rs.	a.	p.
Wild elephant	1,175	0	0
Wild pig	146	8	0
	1,321	8	0

Three persons were attacked and mauled by a wounded tiger, and also by a panther in the West Khandesh Division. Necessary medical help was given to these persons.

A shikari was killed in the Teregali jungle near Yellapur in Kanara by an elephant which he had himself wounded. In Kanara N. D. two persons were mauled by bears but fortunately both recovered from the attack. One village servant in Bagalkot Range of Dharwar-Bijapur Division was injured by a panther which he attempted to kill.

As a measure of fire protection, the Tansa Catchment area in the East Thana Division has been closed to hunting and shooting for a period of 5 years from 1st March 1934.

A proposal has been under consideration to bring all reserved forests in the Panch Mahals and Thana Districts and all reserved and protected forests in the Nasik District under the Game rules.

The Commissioner in Sind has sanctioned the trial of a scheme under which two or more Semi Game Reserves are to be created in each of the Forest Divisions in Sind, by alloting certain forests for shooting wholly to selected and influential land-holders living in the vicinity of such forests, who would protect them, excluding these forests from all other shooting licenses.

The remarks made by Mr. Y. R. Divekar, Divisional Forest Officer, Kolaba, on the malki lands and khoti forests of Kolaba are of interest and are quoted below in full :—

" *Malki Lands.*—Speaking of Malki teak, a new comer to the Division is struck by the extraordinary jumble of Malki forests with Government forests which obtains in the Division and probably nowhere else in the Presidency. This makes protection not only difficult but more costly, since it is far easier to look after solid blocks of forests than forests honey-combed with malki holdings. Most of the more accessible as well as better class of forest is all Malki and is being sadly mismanaged, besides often serving as a cover for offences of illicit cutting in Reserved Forest. The Malki owner's interest in his forest lasts up to the realisation of any

revenue from the growing stock and once this is cut and removed his interest in it ceases and it is left uncared for, to go to waste. In the larger interests of the community as a whole this state of things is much to be deprecated—particularly in view of the fact that an expert Department is already on the scene and managing on scientific lines the forests of the State. It could manage these Malki forests also without any extra cost, nay, paradoxical though it may sound, actually making a saving on protective establishment. It is, therefore, much to be wished that whenever opportunity offers Malki forest will be acquired and afforested and Reserved Forest Blocks consolidated and the initial mistake made at the original settlement of allowing valuable forest to be under private ownership remedied. The time is ripe for such a policy of consolidation, since owing to the fall in the price of agricultural produce many private individuals who have already cleared their forests of the tree growth and realised the value and spent it, find it increasingly difficult to pay the annual assessment on their forest holdings and are clinging to them merely from sentimental motives and would be glad to be rid of them almost at any price. This situation may well be taken advantage of even if it means the raising of a loan to buy out the Malkidars.

"*Khoti Forests.*—Equally unsatisfactory and in need of early solution is the question of the khoti forests. By some extraordinary oversight the khots are being paid what is practically a third of the gross income from so-called khoti forests, though the khot has no proprietary right in the land and everything from protection to scientific planting and tending is done by Government at their expense and the khot does nothing. As has been elsewhere shown at some length, this one-third share can be paid only by Government sustaining losses as a result of their working of the khoti forests; for no industry, least of all forestry, can afford to pay a third of the *gross* revenue without steering for bankruptcy. This will be seen when it is remembered that the net revenue of the Division is only 19·4 per cent. (average of past 5 years). Proposals for the solution of this question were submitted during the year and it is to be hoped that a satisfactory solution will be reached soon. No solution is to be reached by way of the courts which administer (as a Judge himself once said) law not justice; this was again seen in the course of the year in the Gopalwat Khoti case. The courts have no power to go beyond the letter of the original agreement and will not recognise expedients like the 'deductions on account of forest damage' through illicit cuttings etc., with which it was sought to put a brake on the khot's unearned increment. These flank attacks having failed the only remedy is to revise the original khoti agreement of 1863 which is over 70 years old and should have been by now twice revised. Over 3 lakhs of rupees have been already lost by way of these khoti share payments—a fact which shows how urgent is the need for an equitable revision."

The Chief Conservator fully agrees with the views expressed by Mr. Divekar both with regard to the Malki lands and Khoti forests. As regards Malki lands the chief difficulty as usual is with reference to funds in these days of financial stringency. A scheme for acquiring about

21,000 acres of occupied lands within the demarcation line in the Poona and Satara Divisions has been pending with Government for the last five years but so far no progress has been made in that direction. The teak growing on these lands has been preserved for the last 40 years for eventual acquisition of the same. With regard to the Khoti forests the matter has been taken up and is being considered by the Chief Conservator in consultation with the Conservators.

Irrigated Plantation Scheme in Sind.—The 10,000-acre Irrigated Plantation Scheme mentioned in the previous year's report was referred to the Government of India. Orders have now been issued by the Government of India for the inspection of the land and close investigation of the soil by a Committee consisting of the Inspector General of Forests, the Conservator of Forests, Sind Circle, and one expert Forest Officer from the Punjab. The inspection will take place in January 1935.

The question of recruitment to the Bombay Forest Service was referred to Government and is under their consideration. It is hoped an early decision will be reached so as to facilitate timely arrangements being made for filling vacancies occurring shortly by the retirement of certain officers.

CHAPTER IX.

The following is a summary of the progress made in the Forest Administration in the Bombay Presidency including Sind during the years 1929–30 to 1933–34 :—

1. Organization.

In accordance with the recommendations of the Lee Commission, 1924, the Gazetted Services of the Department were completely provincialised with effect from 1st October 1929. The existing All-India Officers have been retained and are still in a controlling position, their status and interests being safeguarded under the provisions of the All-India Services (Transferred Departments) Replacement Rules and of rule 27 of the Civil Services (Classification, Control and Appeal) Rules. The new provincialized service, which is designated the Bombay Forest Service, has been divided into classes I and II. Class I of the new Service corresponds to the old Imperial Forest Service while Class II represents the old Provincial Forest Service. There are at present in the cadre sanctioned by Government 49 officers (as against the original strength of 70), 31 in Class I including the Indian Forest Service Officers, and 18 in Class II. The scales of pay of both the new classes have been revised and made applicable to new entrants as per Government Resolution,

Finance Department, Nos. 5271 dated 1st December 1931 and 150/33 dated 28th December 1933.

As a measure of retrenchment, permanent travelling allowance in excess of Rs. 75 per mensem was in the case of all Gazetted Forest Officers reduced by about 25 per cent. with effect from 1st November 1930 as per Government Resolution, Finance Department, No. 864 dated 10th October 1930.

The classification of Divisional charges into "Major" and "Minor" as well as the special pay of Rs. 100 per mensem admissible to officers of Class II of the Bombay Forest Service for holding "Major" charges, was abolished with effect from 1st December 1930 as per Government Resolution, Revenue Department, No. 7552 dated 1st December 1930.

Subordinate Service.

The strength of the executive and protective Forest Service at the beginning and close of the quinquennium was as follows :—

	No. of Rangers on pay				No. of Foresters on pay			No. of Guards on pay	
	Rs. 200	Rs. 175	Rs. 150	Rs. 80—5—125	Rs. 60	Rs. 50	Rs. 30—1—40	Rs. 25	Rs. 15—½—20
At beginning ..	11	16	24	113	22	113	364	447	1,998
	164				499			2,445	
At close ..	11	16	24	106	22	113	359	444	1,989
	157				494			2,433	

In view of the need for economy 7 posts of Ranger (Rs. 80—5—125 grade), 5 posts of Forester (Rs. 30—1—40 grade) and 12 posts of Guard (3 on Rs. 25 and 9 on Rs. 15—½—20) were reduced during the period under review. Considerable reductions were also made in temporary establishments.

A new grade of Rs. 45 for Foresters has been sanctioned by Government in Government Resolution, Finance Department, No. 150/33 dated 28th December 1933. Redistribution of the existing number of Foresters among the four grades is sanctioned as follows—*vide* Government Resolution, Revenue Department, No. 2206/33 dated 14th May 1934 :—

21 Foresters on Rs. 60
56 Foresters on Rs. 50
95 Foresters on Rs. 45
322 Foresters on Rs. 30—1—40.

This redistribution has gradually to be brought into effect as vacancies occur.

The rate of permanent travelling allowance of Forest Surveyors was reduced from Rs. 20 to Rs. 15 per mensem in the Presidency proper and from Rs. 30 to Rs. 25 per mensem in Sind ; that of Foresters was reduced from Rs. 15 to Rs. 10 in the Presidency proper and from Rs. 25 to Rs. 15 in Sind. Similarly the permanent travelling allowance of Rangers in Sind was reduced from Rs. 45 to Rs. 30.

Territorial Changes.

The important changes effected during the quinquennium were :—

The Kanara Coast Division in the Southern Circle, which was under the control of the Collector of Kanara, was abolished and its area was added to the Kanara Southern Division under the control of the Conservator of Forests, Southern Circle, with effect from 1st November 1930. The Kanara Western Division was also abolished from 1st July 1933 and its area was distributed between Kanara Southern Division and Kanara Northern Division. The Surat Dangs was transferred to the Government of India from 1st July 1933. The Sub-Divisional charge comprising Nasik and Dindori Ranges of the West Nasik Division was also abolished.

Several other changes leading to curtailment, readjustment and transfer of Ranges and Rounds were also effected under proper authority.

The Forest Mahals of Bapgaon, Saiwan, Sawa and Wavar in the Thana District and Bilki Forest Mahal in Kanara Eastern Division were abolished, and the revenue administration of the area comprising the Mahals was resumed by the Revenue Department.

Retrenchments.

Attempts made to effect economies in the working of the Department since the introduction of the Reforms in 1920 were continued during the quinquennium. The most important retrenchments in recurring expenditure carried out during the five years were as follows :—

	Approximate annual saving.
	Rs.
(1) Reduction in the strength of permanent establishment	23,350
(2) Reduction in the strength of temporary establishment	44,900
(3) Saving by the abolition of Sub-Divisional charge of the West Nasik Division	6,700
(4) Reduction in the rate of Permanent Travelling Allowance of gazetted officers	20,500
(5) Reduction in the rate of Permanent Travelling Allowance of non-gazetted officers ..	33,500
(6) Saving by the abolition of one division in Kanara	10,000
	1,38,950

2. Changes in Area.

The forest area at the beginning and close of the quinquennium was as follows :—

—	In charge of Forest Department.		In charge of Revenue Department.		Total.
	Reserved.	Protected.	Reserved.	Protected.	
	Sq. miles.	Sq. miles.	Sq. miles.	Sq. miles.	Sq. miles.
At the beginning	11,755	564	1,955	631	14,905
At the close ..	11,660	246	1,657	622	14,185
Difference ..	— 95	— 318	— 298	— 9	— 720

The variations in the figures of area in charge of the Forest and Revenue Departments are mainly due to the territorial changes mentioned under 1—Organization above. Large areas, in all about 91 square miles, were disforested in the Northern, Central and Southern Circles mostly for purposes of cultivation. Erosions in Sind were also responsible for the decrease in area. An area of about 1 square mile was disforested for transfer to the Archæological Department for the excavations at Mohan-Jo-Daro in the Bagi forest of Larkana Division in the Sind Circle.

3. Forest Settlements.

The finally settled forest area at the beginning of the quinquennium was 12,319 square miles under the Forest Department, and 2,586 square miles under the Revenue Department, total 14,905 square miles, and at the close it was 11,906 square miles and 2,279 square miles, respectively, total 14,185 square miles. This is contributed by the different Circles as shown below :—

	In charge of the Forest Department. Sq. miles.	In charge of the Revenue Department. Sq. miles.
Northern Circle	2,606	460
Central Circle	3,910	1,431
Southern Circle	4,230	388
Sind Circle	1,160	....
Total ..	11,906	2,279

The original proposal to constitute as reserved forest certain rabi numbers in Peint taluka, aggregating 87 square miles, was modified by Government and it was finally decided that only 152 acres from one village should be constituted reserved forest and the remaining area should remain as protected forest in charge of the Forest Department.

In accordance with Government Resolution, Revenue Department. No. 8453/24 dated 13th May 1927 the rabi numbers in the Baragaon Dangs aggregating 6 square miles were constituted protected forests and handed over to the Forest Department for management.

According to the recommendation submitted by the Collector of Thana and sanctioned by Government a part of the reserved forest of Khairanpatti measuring 1,259 acres was converted into protected forest, cleared of valuable tree growth and handed over to the Revenue Department for management.

4. Demarcation.

The total length of artificially marked boundaries in the Presidency at the commencement and close of the quinquennium was as follows :—

	On 1st April 1929 (Linear miles).	On 1st April 1934 (Linear miles).
Northern Circle	8,502	7,830
Central Circle	13,426	13,816
Southern Circle	14,220	14,222
Sind Circle	2,112	2,130
Total ..	38,260	37,998

The decrease in the total length is mainly due to the transfer of the Dangs from the Northern Circle to the Government of India.

5. Surveys.

A topographical survey of some of the forests of Kanara, Dharwar and Bijapur Dist icts in the Southern Circle was undertaken by the Survey of India Department during the period under review ; the final report in this connection is awaited. No survey work was done in the remaining circles.

6. Working Plans.

The work of preparation and revision of working plans was continued with satisfactory progress in all the Circles of the Presidency.

In all 13 plans were sanctioned by Government as shown below :—

	Original.	Revision.
Northern Circle	2	1
Central Circle	..	4
Southern Circle	2	4
Total ..	4	9

Two new plans are under preparation in the Central Circle. The work in connection with the revision of 3 working plans in the Northern Circle, 3 in the Southern and 2 in the Sind Circle is in progress.

The areas under sanctioned working plans at the beginning and close of the quinquennium were :—

	At beginning. Sq, miles.	At close. Sq. miles.
Northern Circle	3,019	2,417
Central Circle	2,499	3,149
Southern Circle	1,905	2,009
Sind Circle	926	916
Total ..	8,349	8,491

The total forest area of the Presidency in charge of the Forest Department at the close of the quinquennium was 11,906 square miles.

There was a net addition of 142 square miles to the area under working plans during the period. New plans are under preparation for 520 square miles out of 797 square miles for which plans are still required. Old plans are under revision for an area aggregating 2,453 square miles out of 3,734 square miles for which revision is required.

7. Communications and Buildings.

A sum of Rs. 12,59,791 was, as shown in the following table, spent on communications, buildings and other works during the period under review as against Rs. 17,92,422 during the previous five years, a decrease of Rs. 5,32,631. By sub-heads these amounts were :—

	New works.		Repairs.		Total.	
	1929–30 to 1933–34	1924–25 to 1928–29	1929–30 to 1933–34	1924–25 to 1928–29	1929–30 to 1933–34	1924–25 to 1928–29
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Communications ..	4,24,823	6,09,974	4,81,591	5,32,572	9,06,414	11,42,546
Buildings ..	1,49,831	3,57,761	1,39,411	1,89,904	2,89,242	5,47,665
Other works ..	16,320	37,054	47,815	65,157	64,135	1,02,211
Total ..	5,90,974	10,04,789	6,68,817	7,87,633	12,59,791	17,92,422

Financial conditions being far worse than in the previous quinquennium, the programme of new works had greatly to be curtailed and was limited to works which were absolutely necessary either in the interest of revenue or of administration. Economy in expenditure on repairs was also observed as far as possible. The annual contribution of Rs. 25,000 to Local Boards in Kanara ceased to be paid from the forest budget grants from the year 1930–31, the contribution being met from the funds under "41, Civil Works". This fact was partly responsible for the decrease in the cost of repairs on communications.

The Forest Engineering Branch was of much help in carrying out works required for the development of forests. The urgent need for retrenchment in expenditure, however, limited the activities of this Branch to works of absolute necessity. The work done during the period consisted of (1) survey and aligning of roads, preparation of their estimates and a certain amount of actual construction, (2) investigations into special subjects, (3) skidding or mechanical extraction of timber and (4) upkeep of sawmills. machinery and stores.

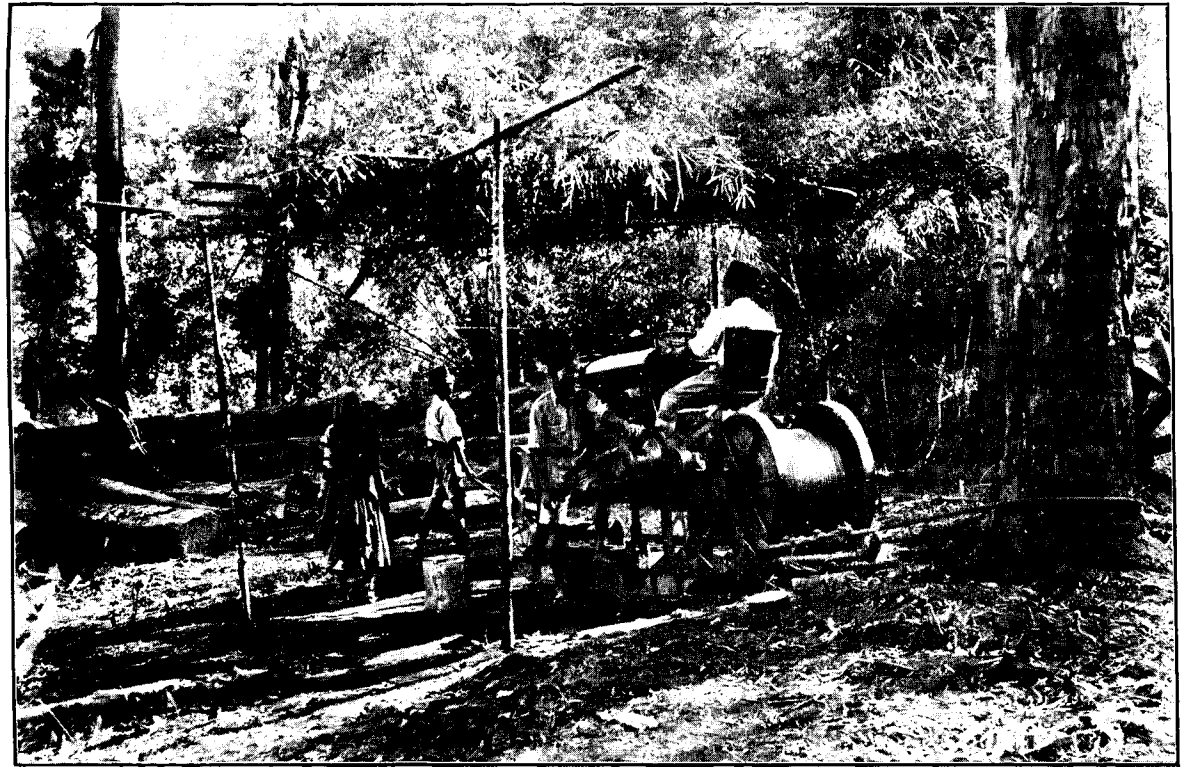
Surveys and alignments of new roads lying in difficult places were carried out in all the Circles of the Presidency proper. In the Central Circle the construction of the Dara-Dhadgaon road in the mountainous region of the Satpuras in the North Khandesh Division presented some intricate engineering problems and they were successfuly solved.

An experimental expanded metal nalla crossing in lieu of a bridge was built on the Kadra-Shivpur road in Kanara. It consists of a boulder bund thrown across a nala subject to heavy flooding. The entire mass of boulders is enclosed in sheets of expanded metal linked together by means of wire and made fast to timber baulks embedded well below the nalla bed on both the up and down stream sides of the road. It is expected that this method will result in keeping the annual expenses on repairs down to the cost of merely spreading a few inches of murram on the expanded metal surface of the roadway.

New designs on economical lines were prepared whenever necessary to meet the present financial conditions. A saving of nearly 40 per cent. has been made by use of a modification of the Standard Type Design Culvert. Fresh plans have been drawn up for forest buildings using asbestos-cement sheets in lieu of masonry. This, besides rendering it unnecessary to import expensive skilled labour into out-of-the-way places, results in a considerable saving in cost over the ordinary Standard design, but whether this material will stand up to conditions remains to be seen.

Extraction of timber was carried out in the Nagzari Valley, Kalinadi and Kaneri Slopes in Kanara by Fordson skidding outfits. The work has been successful though it involved longer hauls over more difficult slopes than on former occasions.

Six sawmills worked during the period under review, at Chikhalda in the Dangs, at Badgi and Haste in Peint, and at Dandeli, Bomanhalli and Kirwati in Kanara. Three mills, Haste and Badgi in the Northern Circle and Bomanhalli mill in the Southern Circle, were finally closed down for want of work, and a new sawmill was erected at Mandurli in Kanara N.D. The sawmill at Chikhalda (Dangs) was shifted to Sundha which has subsequently been transferred to the Government of India.



G. P. Z. P. 1934.

(8). TRACTOR SKIDDER AT WORK.
Slackening rope for return trip.

G. P. Z. P. 1951.

(9). SKIDDING.

A heavy log reaching a trip block.

All the mills have shown handsome profits. Systematic organization was introduced for the working of the sawmills which has resulted in substantial reduction in sawing costs. Several alterations and improvements were carried out in machinery and gearing during the period under review.

In April 1932 an experimental demonstration of logging, road transport and road repairs by means of Caterpillar Tractor was given in Kanara forests. The object of the demonstration was to find out whether a Tractor would be able to compete successfully with animal transport in logging and extraction operations, and also with manual labour and steam or bullock rollers on road repair works. From a mechanical point of view the Caterpillar was most efficient, particularly in snaking logs over steep and difficult country.

8. Forest Offences.

The average annual number of forest offences reported during the period under review compares with that in the preceding five years as follows :—

	Northern Circle.		Central Circle.		Southern Circle.		Sind Circle.		Total.		Difference
	Quinquennium.		Quinquennium.		Quinquennium.		Quinquennium.		Quinquennium.		
	Present.	Previous.	Present.	Previous.	Present.	Previous.	Present.	Previous.	Present.	Previous.	
I. Injury to forest by fire.	735	619	674	563	451	566	169	165	2,029	1,913	+116
II. Unauthorized fellings.	3,826	2,899	4,242	3,443	1,480	1,409	1,260	1,375	10,808	9,126	+1,682
III. Unauthorized grazing.	1,951	2,054	2,233	2,171	633	860	1,697	1,480	6,514	6,565	−51
IV. Miscellaneous .	801	403	1,364	1,104	317	236	197	90	2,679	1,833	+846
Total ..	7,313	5,975	8,513	7,281	2,881	3,071	3,323	3,110	22,030	19,437	+2,593

On the whole there was an increase of 2,593 cases, which is shared by all Circles except the Southern Circle. The increase occurs under all heads except " unauthorized grazing ". The increase under each head was due partly to the Civil Disobedience Movement and partly to the greater vigilance shown by the subordinates in forest protection. The increase under " Fire " is attributed, to a certain extent, to the suspension of communal punishment, which however was reintroduced by Government in 1932–33. The small decrease under " grazing " was due to greater facilities offered for grazing, by curtailing the period of closure etc.

9. Fire Protection.

The average area under systematic fire protection and the average of failures during the two quinquennial periods are compared below :—

Circle.	Average area in square miles.					
	1929-30 to 1933-34.			1924-25 to 1928-29.		
	Area attempted to be protected.	Failures.	Percentage of success.	Area attempted to be protected.	Failures.	Percentage of success.
Northern ..	3,324	95	97·1	3,339	97	97·6
Central ..	3,846	362	90·6	2,908	149	94·9
Southern ..	1,622	79	95·1	1,768	103	94·2
Sind ..	492	,7	98·6	489	6	98·8
Total ..	9,284	543	94·2	8,504	355	95·8

The area attempted to be protected during the period under review was more than in the previous quinquennium. The increase is shared by the Central and Sind Circles. The increase in the area under "Failures" occurs mainly in the Central Circle, and the same was due partly to the temporary suspension of communal punishment and partly to the change in the attitude of forest villagers towards fire protection as the result of the Civil Disobedience Movement.

10. Protection from Cattle.

The average areas annually open and closed to grazing during the two quinquennial periods were as follows :—

	Average area in square miles.					
	Open to all animals.	Percentage.	Open to all animals except browsers.	Percentage.	Closed to all animals.	Percentage.
Present quinquennium.	3,346	22·7	9,630	65·3	1,763	12·0
Past quinquennium	3,626	24·2	9,075	60·7	2,262	15·1
Difference ..	−280	....	+555	....	−499	....

Though the total forest area of the Presidency decreased owing to the transfer of the Dangs to the Government of India the area open to all animals except browsers increased by 555 square miles. The period of closure in the Thana and Panch Mahals forests was reduced from 10 to 5 years except in cases where the growth was retarded by fires. Similar

relaxation was made in the teak pole areas of Dharwar, Kalghatgi and Bankapur-Hangal Working Plan and Dharwar-Kod Scrub forests. In the Sind Circle, owing to prolonged submersion all tree seed reproduction was killed in some of the felled areas which became grass bound in consequence and these areas had to be thrown open to horned cattle in order to keep down the growth of grass. The decrease in the area open to all animals including browsers was due to protective steps taken against browsers in respect of some areas of teak plantations.

The average number of all animals admitted to grazing in the forests decreased from 2,458,285 in the previous quinquennium to 2,284,394 in the period under review. By Circles these figures were :—

	Present quinquennium.	Past quinquennium.
Northern Circle	854,212	774,688
Central Circle	895,455	1,105,718
Southern Circle	430,827	477,692
Sind Circle	103,900	100,187
	2,284,394	2,458,285

The increase in the Northern Circle was chiefly due to the greater vigilance exercised in the matter of recovering grazing fees, and that in the Sind Circle was due to more browsers of Kohistan (Hill) maldars admitted to graze. The decreases in the Central and Southern Circles were due to (1) cattle disease that prevailed in some parts of Kolaba, Dharwar and Bijapur Districts, (2) smaller number of cattle of professional graziers having come to graze in Khandesh owing to trade depression and (3) all calves under 18 months being now exempt from fee.

11. Yield and Outturn.

The average annual outturn of the forest for the two periods was as follows :—

Circle.	Timber and fuel cubic feet in thousands.		Bamboos value.		Sandalwood value.		Minor produce value.	
	Average, 1929–34.	Average, 1924–29.	Average, 1929–34.	Average, 1924–29.	Average, 1929–34.	Average, 1924–29.	Average, 1929–34.	Average, 1924–29.
Northern ..	9,850	8,989	53,846	56,681	61	127	1,81,367	1,93,381
Central ..	7,000	6,509	14,756	11,756	4,665	3,584	4,77,009	6,41,059
Southern ..	8,744	10,518	71,862	77,181	1,20,186	1,24,004	1,38,916	1,51,135
Sind ..	16,325	19,369	..	..	..	..	63,119	84,086
Total ..	41,919	45,385	1,40,491	1,45,618	1,24,912	1,27,715	8,60,411	10,69,661

The increase under "timber and fuel" in the Northern and Central Circles was mainly due to the exploitation of old standards and to the sale of malki teak coupes in the Thana Divisions, and to the transfer of the control of malki teak in the Kolaba Division from the Revenue to

the Forest Department, which resulted in the exploitation of a large number of royalty trees. Inferior stocking of teak pole coupes in the Southern Circle, postponement of sale of certain coupes in Sind, and restriction in the quantities of timber brought to sale depôts in view of the depressed condition of the timber market were mainly responsible for the decrease in the Southern and Sind Circles.

The decrease under " bamboos " was due to the transfer of the Dangs to the Government of India.

The exploitation of sandalwood is now regularized by the prescriptions of a working plan thus forming an effective check on tendencies to overwork the forests of this valuable species. This partly accounts for the decrease under " sandalwood ".

The general trade depression resulting in a poor demand for minor forest products was responsible for the decrease under " minor produce ".

(ii) Free Grantees.

Circle.	Timber and fuel cubic feet in thousands.		Bamboos value.		Minor produce value.	
	Average, 1929–34.	Average, 1924–29.	Average, 1929–34.	Average, 1924–29.	Average, 1929–34.	Average, 1924–29.
Northern ..	14	30	144	131	295	303
Central ..	38	19	1,268	536	3,550	2,885
Southern ..	58	60	677	297	4,490	26,889
Sind ..	47	60	....	....	17,220	6,940
Total ..	157	167	2,089	964	25,555	37,017

These grants vary according to circumstances as the majority of them are made for repairs to houses and rebuilding them in case of destruction by flood or fire.

(iii) By Concessionists.

Circle.	Timber and fuel cubic feet in thousands.		Bamboos value.		Minor produce value.	
	Average, 1929–34.	Average, 1924–29.	Average, 1929–34.	Average, 1924–29.	Average, 1929–34.	Average, 1924–29.
Northern ..	4,444	5,229	4,898	6,337	483,138	298,908
Central ..	673	1,119	52	343	58,898	59,545
Southern ..	3,303	3,300	45,000	45,000	304,339	304,339
Sind ..	6	11	....	....	7,401	4,159
Total ..	8,425	9,659	49,950	51,680	853,771	666,951

These are estimated values of the material removed by the people enjoying privileges under the various codes and settlements.

12. Financial Results.

The average annual financial results for the two quinquennial periods compare as follows :—

Circle.	Revenue.		Expenditure.		Surplus.		Difference.
	1929-34.	1924-29.	1929-34.	1924-29.	1929-34.	1924-29.	
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Northern ..	20,12,531	25,59,257	10,08,383	11,76,097	10,04,148	13,83,160	— 3,79,012
Central ..	10,27,620	12,94,382	6,72,196	7,10,456	3,55,424	5,83,926	— 2,28,502
Southern ..	24,86,869	28,73,852	16,29,826	17,20,819	8,57,043	11,53,033	— 2,95,990
Sind ..	5,26,323	7,12,812	3,35,781	3,95,230	1,90,542	3,17,582	— 1,27,040
General Direction and Forest Engineering Branch.	1,052	4,263	2,60,158	2,56,077	—2,59,106	—2,51,814	— 7,292
Total ..	60,54,395	74,44,566	39,06,344	42,58,679	21,48,051	31,85,887	—10,37,836

The period under review was financially very unsatisfactory. The average gross revenue decreased by Rs. 13,90,171 and the average expenditure by Rs. 3,52,335 while the fall in the average surplus amounted to Rs. 10,37,836. The fall was shared by all Circles in the Presidency. The general trade depression which continued during the major part of the quinquennium, the Civil Disobedience Movement, which caused an unprecedented drop in revenue during 1930-31, the curtailment of supply of sleepers and sawn timber to the M. & S. M. Railway, and the transfer of the Dangs (Surat) to the Government of India were the chief factors which contributed to the decrease. The decrease in expenditure was due to several causes the chief among them being (*i*) curtailment of departmental operations, (*ii*) economy in expenditure due to financial stringency, (*iii*) reduction in the strength and rates of pay, travelling and other allowances of establishment and (*iv*) emergency cut in salaries.

13. Forest Education.

Twenty-three candidates for Rangerships were sent up for training at the Madras Forest College at Coimbatore. Of these, 21 received higher standard certificates and 2 lower standard. The vernacular forest class in the Northern Circle which was started in 1922 for training Foresters and guards from the Northern and Central Circles was continued during 1929-30. The class was held in abeyance during 1930-31 and 1931-32 as a measure of economy. It was restarted in 1932-33 and continued during 1933-34. In all 68 subordinates went through the course. In the Southern Circle the scheme for training literate subordinates in a set course of instructions on Forestry, Silviculture etc., under experienced Rangers was continued. 46 subordinates went through this course successfully during the period under review.

14. Research and Experiments.

The research branch started in 1925–26 continued to function during the quinquennium under review. Investigations were completed in respect of 13 out of 23 subjects. The results obtained in connection with the germination tests of teak and sandalwood seed, the relative value of different species for the manufacture of charcoal, the coppicing and artificial reproduction of *anjan*, the propagation of *safed musali* and the economic rotation for *bahan* were conclusive. A detailed report analysing the results of work done, besides being published in a self-contained Chapter in the Annual Administration Report, is supplied every year to the Forest Research Institute for incorporation in the Progress Report of Forest Research in India, Part II, issued by the Government of India.

Research in Sind is of purely local value and there considerable progress was made with experiments connected with the artificial reproduction of species foreign to Sind such as mulberry, *shiwan*, etc., and the evolution of formulæ for carrying out thinnings in *babul* stands and estimating correctly the yield of standing *babul* and *kandi* crops.

15. Administration and Control.

The office of the Chief Conservator of Forests was held by the following officers :—

	From	To
Mr. H. L. Newman, C.I.E.	1st April 1929	30th April 1930.
Mr. P. E. Aitchison	1st May 1930	21st November 1930.
Mr. H. L. Newman, C.I.E.	22nd November 1930	17th March 1932.
Mr. P. E. Aitchison	18th March 1932	30th March 1934.
Mr. C. E. L. Gilbert	31st March 1934.	

The Conservatorships were held as follows :—

Northern Circle.

Mr. H. W. Starte	1st April 1929	21st February 1930.
Mr. A. C. Hiley	22nd February 1930	6th April 1930.
Mr. H. W. Starte	7th April 1930	13th December 1930.
Mr. R. W. Inder	14th December 1930	15th August 1933.
Mr. H. W. Starte	16th August 1933	31st March 1934.

Central Circle.

Mr. C. E. L. Gilbert	1st April 1929	4th June 1929.
Mr. H. L. Newman, C.I.E.	5th June 1929	10th June 1929.
Mr. D. B. Sothers	11th June 1929	25th March 1930.
Mr. C. E. L. Gilbert	26th March 1930	8th April 1930.
Mr. A. C. Hiley	9th April 1930	16th September 1932.
Mr. H. W. Starte	17th September 1932	14th August 1933.
Mr. P. E. Aitchison	15th August 1933	18th August 1933.
Mr. R. W. Inder	19th August 1933	31st March 1934.

	From	To
	Southern Circle.	
Mr. P. E. Aitchison	.. 1st April 1929	.. 28th April 1930.
Mr. D. B. Sothers	.. 29th April 1930	.. 23rd November 1930.
Mr. P. E. Aitchison	.. 24th November 1930	.. 23rd February 1931.
Mr. D. B. Sothers	.. 24th February 1931	.. 27th October 1931.
Mr. P. E. Aitchison	.. 28th October 1931	.. 14th March 1932.
Mr. D. B. Sothers	.. 15th March 1932	.. 31st October 1933.
Mr. A. C. Hiley	.. 1st November 1933	.. 31st March 1934.
	Sind Circle.	
Mr. R. W. Inder	.. 1st April 1929	.. 13th April 1930.
Mr. C. E. L. Gilbert	.. 14th April 1930	.. 22nd March 1934.
Mr. J. B. T. Brooks	.. 23rd March 1934	.. 31st March 1934.

Mr. H. L. Newman, C.I.E., Chief Conservator, and Messrs. J. L. Bell, K. E. Kotwal, A. F. Gonsalves, P. J. Rodrigues and Rao Saheb G. R. Patkar, Deputy Conservators, retired from service during the period under review. Mr. M. S. Tuggarse, Assistant Conservator, died in 1929-30 while on leave preparatory to retirement.

Messrs. E. K. Kotwal and A. D. Mufti were directly recruited to Class I of the Bombay Forest Service.

General Remarks.

General Progress.—Perusal of the financial returns will show that the general trade depression and the campaign of Civil Disobedience launched by the Congress had a very serious effect on the revenues of the Presidency. On the other hand, as compared to other trades, it may be said that the timber trade has not done so badly. With the help of various economies, including a cut in salaries of all members of the service, a substantial surplus has been maintained. The timber market is now beginning to show signs of improvement and it is hoped that this Presidency will be able to show a normal surplus in the near future.

Tours and Visits.—His Excellency the Governor of Bombay visited the Timber Depôt at Dandeli in October 1929, and again camped at Dandeli from 23rd to 29th December 1932 inspecting some of the important high forests and works going on therein.

The Forest Economist, Dehra Dun, came to make a demonstration to show the uses of a portable charcoal kiln in the West Nasik Division. Unfortunately the kiln was damaged in transit and consequently the demonstration could not be carried out satisfactorily.

The Entomologist of the Forest Research Institute, Dehra Dun, and his party visited some forests in Thana in order to study timber borers and other insects which damage wood.

Forest Advisory Committees.—In accordance with the recommendations of the Forest Grievances Enquiry Committee, Forest Advisory Committees were formed for the Panch Mahals, Thana and Nasik districts in the Northern Circle, Kolaba, East and West Khandesh districts in the Central Circle, and Kanara and Belgaum districts in the

Southern Circle. These Committees, it is hoped, will supply a channel for the Department to explain its policy and the principles of forest management to the public. The grievances ventilated through the non-official members were normally of a general nature dealing with questions of policy on which Government have already given their decision. Matters arising out of ignorance of rules were made clear by the officers of this Department, and all reasonable demands were carefully considered and met as far as possible. Of late non-official members do not appear to take much interest in these Committees as several meetings proposed to be convened by the Collectors, particularly in the Northern Circle, were subsequently cancelled as no subjects were proposed for discussion.

Fodder Storage.—The 9 year monopoly grass contract in the Northern Circle viz. the contract for the storage of grass against possible fodder famine, at Palghar, Godhra and Dohad terminated in May 1930, and was not renewed. The grass stored at Palghar was sold and removed by the purchaser, while that stored at Godhra and Dohad has been sold but a part of it is still not paid for and awaits removal in accordance with the terms of the contract.

Civil Disobedience Movement.—Forest Satyagraha was one of the phases of the movement which caused very considerable trouble to thi Department. The protective staff went through a very difficult time, several members being subjected to all sorts of harassment. Deliberate violation of Forest Rules was resorted to, and many immature sandalwood and other trees were cut and removed in several parts of the Presidency. The offenders and instigators were however subsequently apprehended and suitably punished. The movement was practically dead at the close of the period, but it will be some time before the effects of the movement quite disappear. The loyalty of the forest staff remained unshaken, and their devotion to duty during the trying periods was most praiseworthy.

Remarks of Divisional Commissioners on Circle Reports are given below :—

Commissioner, Northern Division (Mr. J. H. Garrett, C.S.I., I.C.S.) :

" The area under Forests in the Northern Circle decreased from 3,809 square miles to 3,066 square miles. The decrease is chiefly due to transfer of the Dangs Division to the Government of India and of the Mandvi Sub-Division from Surat District to the Central Circle.

" 2. The number of forest offences increased from 7,648 in the previous year to 8,121 during the year of report. An increase of 606 offences is recorded under the heads ' fire ', ' unauthorised fellings ' and ' unauthorized grazing ', but this increase has been partly counterbalanced by a decrease of 133 under the head ' other offences ' leaving a net increase of 473 offences on the whole. The largest increase, viz., of 438 offences is noticeable under the head ' unauthorized fellings ' which is attributed to greater vigilance on the part of subordinates and to the

maintenance in the West Nasik District of a register in the Divisional office, wherein the number of offences detected by each guard and forester is recorded. This register serves as an index to the amount of patrolling work done by them and so offences which used to go unreported in the past are now reported. If this register has proved so helpful, the question about its adoption at other places may be considered.

" 96 new cases were taken to Court. Decision was recorded in 105 cases (including 30 cases pending at the end of the last year) out of which 90 (or 86 per cent.) ended in conviction. 6,418 cases were compounded with the result that an amount of Rs. 27,186 was received as compensation in 6,232 cases during the year while in the remaining 186 cases the offenders were let off with a warning. In 1,418 cases the offenders were not detected.

" The number of offences under the head ' fire ' increased from 635 to 671, i.e., by 36. The Panch Mahals Division, however, shows a decrease of 65 offences as compared with the figures of the last year while the West Thana Division shows an increase of 73 offences over those of the last year. This increase is attributed to early desiccation of grass in the forest. Before the area of the Dangs was transferred to the Government of India a Darbar was held at Ahwa and turbans and silver bangles worth Rs. 549-14-0 in the aggregate were distributed as rewards to the deserving patels for successful fire protection.

" 3. Grazing fees collected during the year under report amounted to Rs. 1,33,657 as against Rs. 97,743 in the previous year. The increase is mostly contributed by the West and East Nasik Divisions where owing to the tightening of control in regard to the recovery of grazing fees both the number of cattle admitted to grazing and the grazing revenue increased considerably.

" The number of cattle impounded for unauthorized grazing decreased from 39,148 to 36,842. The decrease is mainly contributed by the Panch Mahals Division where strong measures were taken to stop illicit grazing.

" 4. Owing to the territorial changes referred to in paragraph 1 above, the total revenue and expenditure fell from Rs. 22,16,217 and Rs. 9,52,675 to Rs. 17,00,864 and 7,62,958 respectively. This has resulted in a decrease of Rs. 3,25,636 in the surplus revenue of the working of forests during the year. In this connection the Conservator remarks that had it not been for the territorial changes the Northern Circle would have shown an increase both in the gross revenue and surplus as the number of coupes containing old standards in the three Thana Divisions were sold during the year under report.

General Remarks.

" (*i*) The scheme for the proposed establishment of a fodder and bull-breeding farm at Zankharia approved in Government Resolution, Revenue Department, No. 1509, dated 31st May 1921 was ultimately

abandoned under Government Resolution, Revenue Department, No. 2547/24, dated 19th February 1934. A proposal for the disafforestation and disposal of the area for cultivation after keeping 571 acres 24 gunthas for inforest settlers has been submitted to Government.

"(*ii*) The Gurcharan Officer has taken over the charge of that area of Khairanpatti reserved forests which has been converted into protected forest.

"(*ii*) A working plan report for the Thana Gurcharans is in the course of preparation.

"(*iv*) The Forest Advisory Committees have not done any useful work as the non-official members do not take any interest in their working.

"Rules regulating hunting and shooting have been proposed for application to all the reserved forests of the Panch Mahals and Thana Divisions. This matter is now before Government.

"The relations between the Forest and other Departments continued to be cordial.

Quinquennial Review (1929–30 *to* 1933–34).

"The area under Forests which was at the commencement of the quinquennium 3,804 square miles decreased to 3,060 square miles at its close. The decrease of 738 square miles is mainly due to the territorial changes referred to in paragraph 1 of the review of the annual report, and partly due to disafforestations for giving out land for cultivation and to rectification of mistakes in the area shown in previous reports.

"The four forest Mahals of Bapgaon, Saiwan, Sawa and Wavar which were in charge of the Forest Department were retransferred to the Revenue Department under Government Resolution, Revenue Department, No. 1442/24, dated 16th November 1931.

"The reserved forests of Khairanpatti measuring 1,258 acres 30 gunthas were converted into protected forests and were taken over by the Revenue authorities (the Gurcharan Officer) after clearing the valuable tree-growth therefrom, as directed by Government in their Resolution No. 43/28, dated 24th July 1930.

"Three working plans viz. (1) the Revised plan for the Peint and adjoining forests, (2) the Thana Malki teak working plan, and (3) working plan for the Protected Forests in charge of the Forest Department and nominal reserves (as suggested by Mr. Perry) were sanctioned by Government (*vide* Government Resolutions Nos. 1195/28, dated 14th May 1929, 43/33, dated 7th April 1933 and 1029/33, dated 17th February 1934). The working plan for Thana Forests is under revision. The preliminary report for the Thana Gurcharans is drawn up by the Gurcharan Officer, Thana.

"The progress of the work of construction of and repair to roads and buildings was retarded owing to cuts in grants on account of financial stringency.

"There was an increase in the number of offences under the heads 'Fire', 'Unauthorized fellings' and 'Miscellaneous' or other offences; on the other hand the number of offences under 'unauthorized grazing' showed a decrease. On the whole there was an increase of 1,338 offences. The increase is attributed to greater vigilance on the part of forest subordinates. Increase in offences under unauthorised fellings is attributed to the suspension of communal punishment. If the Conservator considers that the system of communal punishment should revive, he can make out a case for its revival in the affected parts with the approval of the Commissioner (Government Resolution No. 8654/24, dated 29th July 1932). The political disturbances of 1929-30—1930-31 had temporarily increased the number of offences under 'Fire' in the Mandvi Sub-Division.

"The average number of all animals admitted to grazing was 854,212 against 774,688 in the preceding quinquennium. The increase is attributed to the vigilance exercised in collecting grazing fees in the East Nasik Division. There was an increase in the volume of timber and fuel exploited. It was due to the exploitation of old standards and to the sale of malki teak coupes in the Thana Division. Poor demand on account of trade depression is reported to be the cause of decrease in the value of minor forest produce.

"The average gross revenue during the quinquennium under report shows a decrease of Rs. 5,46,733. Similarly the average expenditure also shows a decrease of Rs. 1,62,980. The territorial changes, the Civil Disobedience Movement and trade depression are reported to have contributed to the decrease in the revenue; while curtailment of departmental operations, economy in expenditure in view of the financial stringency and curtailment in the cost of establishment are the chief causes of reduction in expenditure.

Revenue.

Rs. 25,59,264 in 1924-29.
Rs. 20,12,531 in 1929-34.

Rs. 5,46,733

Expenditure.

Rs. 11,75,498 in 1924-29.
Rs. 10,12,518 in 1929-34.

Rs. 1,62,980

"The Forest Advisory Committee have not shown any useful work. The non-official members took very little interest in them as is evident from the fact that general meetings proposed to be convened by the Collectors concerned had to be cancelled as no subjects were proposed for discussion.

"The Department had to work under unfavourable conditions during the political unrest of 1930-31; nevertheless they succeeded in carrying out the administration satisfactorily. It is noticeable that there has been a marked improvement in control as shown by the improved detection of offences and the increase in grazing fees. I think it can safely be held that these results show not an increased tendency to commit offences nor undue harshness by the Forest officers but a return to normal conditions after a period when public co-operation was weakened by agitators.

Remarks on the Forest Administration of the Mandvi Sub-Division.

" The transfer of the Mandvi Sub-Division to the Central Circle has helped substantially to add to the revenue of the latter circle, but from the point of view of practical working of the Mandvi Forests, the transfer is reported to have caused inconvenience. However the re-transfer of it to the Northern Circle which is under contemplation, after the final settlement of the question of the administration of the Dangs Division will remove the difficulty.

" 2. One minor change in the system of collecting grazing fees was provisionally sanctioned in Government Resolution, Revenue Department, No. 412/33, dated 3rd August 1933 under which such fees are to be collected through the Revenue authorities instead of the Forest staff. Report on this point will be submitted to Government at the end of the revenue year 1934–35 (*vide* this office No. F.O.R. 20, dated 10th November 1933)."

Commissioner, Central Division (Mr. W. W. Smart, I.C.S.) :

" * * * *

Rights, Privileges and Free Grants.

" 2. In the Central Circle free grants of timber were made during the year under report to poor people in deserving cases for the construction of and repairs to houses and huts. They were also made for the construction of and repairs to temples and other works of public utility.

Forest Offences.

" 3. The total number of offences was 9,008 as against 8,599 in the previous year. All the forest charges of this Division except East Khandesh, North Khandesh and Poona were responsible for the increase of 409.

" (*a*) *Injury by fire.*—An increase of 56 offences under this head was shared by all the forest divisions in my jurisdiction except North Khandesh, West Khandesh and East Nasik. This increase is attributed to carelessness in smoking of the villagers and travellers passing through forests and also to the fact that in the East Khandesh Division exceptionally heavy rains had produced an unusual crop of grass.

" The Poona Division contributed to the increase in the shape of fires that occurred in the Military Kurans after the grass operations had been completed.

" (*b*) *Unauthorised felling.*—The West Khandesh and West Nasik Divisions were responsible for the net increase of 285 offences under this head.

(1) The apparently abnormal increase of 419 offences under this head in the West Nasik Division is attributed to the maintenance of a register in the Divisional office wherein the number of offences detected by each guard and forester is recorded.

(2) As this method is said to serve as an index to the amount of patrolling work done by the forest subordinates and to bring on record the offences which used to go unreported in the past, it may be followed with advantage in other forest divisions also.

"(c) *Unauthorised grazing.*—The total increase of 153 in the number of offences under this head was shared by all the forest divisions except Satara and Poona. The increase in the East Khandesh Division is reported to be chiefly due to illicit grazing by cattle from non-forest villages and the bordering villages of His Exalted Highness the Nizam's State.

"(d) *Prosecutions.*—Out of a total number of 139 cases in the Central Circle 114 were decided during the year under review. Convictions were obtained in 104 cases as against 90 cases in the previous year.

"Apart from this, 6,527 cases were compounded in the Central Circle and brought in compensation amounting to Rs. 39,004.

Protection from Fire.

"4. The total area burnt in this Division during the fire season ending 31st May 1934 was 472 square miles as compared with 350 square miles in the previous year. The East Khandesh Forest Division was chiefly responsible for this increase, the area burnt in that Division during the year being more than 2½ times the area burnt in the previous year. The increase in the Poona Division is reported to be due to the plague epidemic which broke out last year. As the people left their villages and dispersed far and wide it was very difficult to secure their assistance in putting out forest fires. The increase in the West Nasik Division is reported to be due to the fires in the grass kurans in the Nasik and Dindori Ranges.

Communal Punishment.

"5. I had recently to approve of proposals for communal punishment made in two cases by the Divisional Forest Officer and the Collector in accordance with the orders in Government Resolution, Revenue Department, No. 8654/24 dated 29th July 1932.

"In the first case, I accorded approval in June last to the proposal to double, for a year, the rates of grazing fees to be recovered from the villagers of Mahirawani in the West Nasik Division for intentionally withholding help in extinguishing a forest fire that took place in February 1934.

"In the second case, the approval was given last month to the proposal to withdraw the privilege of free grazing enjoyed by the villagers of Haldani in the West Khandesh Division and to double the grazing fees leviable from the villagers of Amli and Choupala in the same division for a period of one year. The punishment in this case had to be inflicted on the ground that in spite of the warning issued to the villagers last year there was no reduction in the number of forest offences committed within the area of these villages.

"It is hoped that the action taken in these two cases will not only have the desired effect on the villagers concerned but will also set an example to other villages in which the tendency repeatedly to commit forest offences is marked.

Grazing Fees.

"6. There was an increase of Rs. 14,364 in the revenue realized from grazing fees in the Central Circle during the year under review.

General Remarks.

"7. The forest authorities are to be congratulated on the fact that there was again an increase in the gross forest revenue in both the Central and Northern Circles. The increase in the Central Circle is reported to be due to better prices obtained for coupes in the East and West Khandesh Divisions. It is hoped that this is an indication,—however slight,—of the coming trade revival.

"Owing to the complete absence of political agitation, the relations between the public and the forest authorities continued to be friendly and there was no trouble in the recovery of Government dues during the year.

"I endorse the suggestion made by the Collector of Poona that a little of the surplus revenue should be spent by the Forest Department in improving communications, because I share his conviction that the sum thus spent would be more than repaid in profits and increased facilities of inspection and control. Judicious expenditure in this direction is also likely to act as a fillip to the Village Improvement Scheme in which the Forest Department are expected by Government to play an active part. In the majority of Forest villages inhabited by Bhils and other backward classes, the only practicable method of uplift, for some time to come, would be the improvement of communications and so far as the construction of and repairs to local roads are concerned, the villagers themselves could be persuaded to help in the shape of voluntary manual labour.

"The suggestion made by the Collector of West Khandesh that the policy of establishing Inforest Settlements which has been generally successful in his district should be pushed on with greater vigour, deserves consideration. As pointed out by the Collector this is the only way in which the Bhils and other hill-tribes can get a chance of settling down to the peaceful occupation of agriculture."

Commissioner, Southern Division (Mr. H. B. Clayton, C.I.E., I.C.S.):

Southern Circle.

"The total revenue was Rs. 20,91,808 as against Rs. 23,31,205 in the previous year while the gross expenditure was Rs. 12,95,692 as against Rs. 14,86,437 last year. The surplus thus declined from Rs. 8,44,768 to Rs. 7,96,116. Where there was a fall of Rs. 48,652 in the surplus, there

remained in stock timber worth more than one lakh at the various depots. In view of the general trade depression, however, the financial results of the year may be said to be satisfactory.

"The fall in revenue was shared by all Divisions except Kanara Western and Dharwar-Bijapur Divisions. It was mainly due to the general trade depression, the reduced supply of sleepers to Railways, the smaller number of coupes and compartments sold and the fall in the revenue from the Alnawar-Dandeli Railway. The increase in revenue in the two Divisions is attributed to the recovery of the last year's arrears and the larger number of coupes sold for better prices in Dharwar-Bijapur Division.

"The Conservator's report gives an adequate explanation of the variations in expenditure under each head.

"2. Forest offences during the year numbered 2,661 as against 2,718 in the preceding year. Cases of forest fires and unauthorised grazing showed a decrease of 39 and 56 respectively; whereas illicit cuttings and other offences increased by 17 and 21 respectively. These fluctuations were not extraordinary.

"*Forest fires.*—A marked decrease of 72 occurred in the Kanara Western Division, while in the Kanara Northern Division and Belgaum Divisions there was an increase of 27 and 42 respectively. These variations are reported to be due to natural conditions. While it may be admitted that a dry season may be responsible for an increase in forest fires, it is equally true, as observed by the Collector of Kanara, that protective measures have much to do with the increase or decrease in forest fires. The remarks of the Collectors of Kanara and Belgaum that in no case of forest fires was the offenders detected deserve notice.

"*Unauthorised fellings.*—These offences increased in all the Divisions except in the Dharwar-Bijapur Division where the number fell by 37. This fall is attributed to the greater vigilance exercised by forest subordinates in checking the criminal activities of Lamanis in that Division.

"*Illicit grazing:*—The decrease was more pronounced in the Dharwar-Bijapur Division than elsewhere and it is attributed partly to the effective action taken by the Collector of Kanara against the villagers of Tergaon (Taluka Haliyal who persistently grazed their cattle in closed forest bordering the Kanara district and partly to increased facilities allowed for grazing.

"*Other offences.*—The variations in the several divisions have not been explained. From the Collector's remarks, however, it appears that the increase of 21 offences in Bijapur during the year was due to violation of the transit rules.

"3. The grazing fees recovered during the year amounted to Rs. 87,028 as against Rs. 86,215 in the preceding year. The small increase of Rs. 813 calls for no remarks. There was an increase in the number of cattle admitted to grazing, viz. 441,379 as against 400,534

in 1932–33. The increase is attributed to greater vigilance exercised by subordinates in recovering grazing fees. The number of cattle impounded for illicit grazing fell from 11,097 to 9,478. It is gratifying to note that the decrease, which was shared by all Divisions was mainly due to the improved attitude of cattle owners towards forest laws.

" For the protection of crops from the ravages of wild pigs a gun club has been started at Arvatgi in the Dharwar District under the direction of the Agricultural Department. This club did some good work during the year and the formation of similar clubs along the eastern border of the forest areas of Dharwar, Kanara and Belgaum districts is being undertaken.

" 4. The revenue administration of the four forest Mahals—Dandeli, Kulgi, Virnoli and Kirwatti—was satisfactory.

" 5. The working of the Alnawar-Dandeli Railway was less profitable during the year than in 1932–33. While the revenue declined from Rs. 47,401 to Rs. 44,698 the expenditure increased from Rs. 40,412 to 43,895 with the result that the surplus dropped from Rs. 6,989 to Rs. 803. The decline in the profits is ascribed to increased expenditure on the maintenance of structural works etc., and to the fall in revenue from goods and passenger traffic.

" 6. Though the civil disobedience movement has almost died away it is suspected that the pernicious spirit engendered by it has not completely vanished in the Sirsi-Siddapur Range where the illicit cutting of trees still continues.

" Being a new-comer to the division I note with pleasure that I am satisfied that Forest Officers of all grades realise that the department must work in co-operation with the villagers and endeavour to meet their legitimate needs. No genuine case of a ' forest grievance ' has so far been brought to my notice.

" 7. The relations between the Forest Department and the Revenue Department continued to be cordial.

Remarks on the Quinquennial Report.

" The special feature of quinquennium under report was that the Forest Department had to fight against the general trade depression and the nefarious activities of the Congress agitators who instigated the illiterate masses to destroy forest property and intimidated Forest contractors not to accept forest contracts. As a consequence the average forest revenue which was Rs. 28,73,852 in the last quinquennium, declined to Rs. 24,86,869 and the cases of unauthorised fellings increased."

Kolaba Division.

" The total revenue fell from Rs. 1,67,775 to Rs. 1,62,689 and the total expenditure rose from 1,22,287 to Rs. 1,24,795, the net surplus being Rs. 37,894 as against Rs. 45,488 in the preceding year.

" 2. There was an unusual increase in forest fires which rose from 48 to 100 ; but there was a decrease in the number of other offences. Cases of unauthorized cuttings fell from 1,009 to 982 and those of illicit grazing declined from 314 to 236. ' Other offences ' decreased from 167 to 161. The abnormal increase in fires is ascribed to the carelessness of the villagers and travellers passing through forests while smoking. The Commissioner agrees with the Collector that this explanation is not satisfactory but cannot suggest what the real cause was. The reduction of the period of closure from 10 years to 5 years and sufficiency of grass in malki lands have contributed to the fall in the offences of unauthorized grazing.

" 3. The number of cattle admitted to grazing was 74,235 as against 77,204 in the previous year. The decrease was partly due to the prevalence of cattle disease in Mahad and Pen talukas.

" 4. An area of more than one acre out of the Casuarina plantations at Akshi and Nagaon was washed away by erosion and 225 trees were destroyed.

" 5. Sardar Biwalkar has preferred an appeal to the Privy Council against the decision of the High Court ; and so the settlement of 1,713 acres of forest area is held over pending the decision of the appeal.

" 6. The Forest Advisory Committee held only one meeting during the year. The Conservator reiterates his opinion that the Committee practically does no useful work.

" 7. Government have assigned the net revenue from the Matheran Forests to the Matheran Municipality and have directed that if in any year the expenditure exceeds the revenue, the deficit should be adjusted against the profits of the succeeding years. The Municipality derived no revenue from the forests during the years 1931-32 and 1932-33 as they were deficit years. It is, however, gratifying to note that during the year under report, the deficit of the two previous years was made good and the net surplus of Rs. 1,046-11-9 was paid to the Municipality.

" 8. The year was uneventful, and the relations between the Forest Department and the Revenue Department were cordial."

Commissioner in Sind (Mr. R. E. Gibson, C.I.E., I.C.S.) :

Sind Circle.

" The Commissioner is unable to endorse the Conservator's remark in paragraph 2 of Chapter III of the Report that the inundation of the year was below normal in duration.

" The gauge readings at Bukkur and Kotri during the four months June to September 1933 show that the inundation was generally satisfactory both as regards duration and supply. The fair irrigating level of 13 feet and over at the Bukkur gauge lasted for 54 days (17th July to 8th September 1933) as against 43 days in 1932, 27 days in 1931, 50 days in 1930 and 49 days in 1929.

"The fair irrigating level of 17 feet and over on the Kotri gauge continued for 88 days (12th July to 26th September and 30th September 1933) as against 51 days in 1932, 63 days in 1931, 73 days in 1930 and 58 days in 1929.

"The inundation cannot therefore be regarded as below normal.

"2. Mr. Gilbert performed the duties of Conservator with his usual energy and judgment."

C. E. L. GILBERT,
Chief Conservator of Forests,
Bombay Presidency.

Poona, 13th October 1934.

Report.

Forest Department.

Administration — of, in Bombay Presidency, including Sind, for 1933–34.

GOVERNMENT OF BOMBAY.

REVENUE DEPARTMENT.

Resolution No. P. 57/18659.

Bombay Castle, 20th February 1935.

Letter from the Chief Conservator of Forests (Mr. C. E. L. Gilbert), No. 2/2046, dated the 13th October 1934—Submitting the Forest Administration Report of the Bombay Presidency, including Sind, for the year 1933–34, together with a review of the quinquennium 1929–30 to 1933–34.

RESOLUTION.—In their remarks on the Forest Department report for 1932–33 Government recorded the very noteworthy improvement in the surplus on the working of the forests in this Presidency, the amount in that year being Rs. 23·48 lakhs as compared with the very low figure of Rs. 9·78 lakhs recorded in 1930–31.

2. The net financial result of the year under report has been that the surplus dropped again, from Rs. 23·48 lakhs to Rs. 21·44 lakhs. Government are, however, of opinion that there is no cause for apprehension on this account, nor can the result be regarded as disappointing, as the drop in the Northern Circle (which circle was responsible for the biggest decrease) was attributable entirely to the transfer of the Surat Dangs to the Government of India, the gross forest revenue being diminished by about 6 lakhs thereby and the surplus as shown above by about 2½ lakhs. Revenues of the Central Circle and of Sind actually showed some increase.

3. From the preceding it readily appears that the most important change in the forest area during the year was this transfer of the Dangs in the Surat Division to the Government of India with effect from 1st July 1933. It may be noted that large forest areas, 4 square miles in the Northern Circle, 22 square miles in the Central Circle and 2 square miles in the Southern Circle were disforested in the year under report, chiefly in favour of cultivation.

4. During the year in respect of protection of forests, the system of maintenance of a register, introduced in the West Nasik Divisional Forest Office, wherein the number of offences detected by each guard and forester is recorded, seems to have been largely accountable for the increase in unauthorised fellings recorded in the Northern Circle, as this register, besides serving as an index to the amount of patrolling work

done by each man, resulted in the recording of many offences which in the past would have gone without record. The Sind and Central circles showed a decrease in offences of this nature while increase in the Southern Circle was negligible. The total increase in all circles amounted to 188 cases.

5. In respect of injury from fire the Northern and Sind circles showed an increase compared with the previous year. While it was reported that the early desiccation of grass in the forest caused the increase in the East and West Thana divisions and that there was a certain amount of incendiarism both in the Panch Mahals Division of the Northern Circle and in Sind and while exceptionally heavy grass crop was held partly responsible for increase in East Khandesh, and while, again, in Poona, the plague, ravaging most of the forest villages, led people to go and live in out-of-the-way places and, therefore, no doubt, rendered early assistance to put out fires a matter of great difficulty, it seems obvious that the bulk of the damage was due to carelessness of villagers and of travellers passing through forests. It would seem desirable, therefore, to impress on all concerned the need for continual propaganda to induce villagers and travellers generally to take the greatest care to guard against such accidental fires. It is realised that statistics of the causes of forest fires cannot be accurate and can afford only a rough indication of their origin. But the fact that in 1932–33, 522 fires burning up 53,392 acres were attributed to accident and in 1933–34, 545 fires burning 137,755 acres ("caused accidentally by persons in forests") shows the great need there is for every effort made to combat ignorance and carelessness in this respect. Such fires do not result in disforestation but they represent a direct loss to Government revenues and the prevention of accidental fires in forests is, therefore, a matter which vitally affects the general tax-payer.

6. In the year under report as much as 88 per cent. of the Presidency forests were open to grazing of horned cattle. Reduction of the period of closure from 10 to 5 years was continued in Thana, Panch Mahals and Kolaba Forest divisions and in other parts closure was relaxed where necessary. The number of cattle admitted to grazing was 2,538,734 of which 615,183 were allowed free. The collection of grazing fees rose from Rs. 4,98,662 to Rs. 5,61,056. The value of major and minor produce removed by purchasers amounted to Rs. 26,43,645 and Rs. 9,36,748 as against Rs. 26,66,957 and Rs. 9,26,093, respectively, in 1932–33; the value of major and minor produce removed by concessionists and free grantees once again amounted to a large sum the value being Rs. 12,14,988.

7. An interesting, if somewhat minor, feature of the year under report was the organization of a gun-club, under the control of the Agricultural Department at Arwatgi in the Dharwar District for the protection of crops against wild pigs. Hunting and shooting of wild pig was allowed from 1st July to 31st December and the "club" killed 113 pigs during that period. These figures show the advantages such a scheme has for the agricultural population and it is satisfactory to note

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that the Forest Department has issued instructions to encourage extension of gun-clubs on the Arwatgi system in villages along the eastern border of the denser forest areas of Kanara, Dharwar and Belgaum districts. It is worthy of record also that 322 wild animals were killed in Government forests in the year under report as compared with 209 in the previous year, the number of 28 wild elephants killed being twice the number of those killed in the previous year.

8. It will be seen that forest revenues were well maintained in the year under report (the small setback being due entirely to causes beyond the control of the Department) while relations with village people in regard to such matters as forest protection, grazing and destruction of harmful wild life were satisfactory. Government desire to record their appreciation of the work of the department and its officers, which has been responsible for these results.

By order of the Government of Bombay
(Transferred Departments),

T. E. STREATFIELD,
Under Secretary to Government.

To

The Commissioner in Sind,
The Commissioners of Divisions,
All Collectors, including the Deputy Commissioner, Upper Sind Frontier,
The Chief Conservator of Forests,
All Conservators of Forests,
The Senior Superintendent of Land Records, S. C.,
The Director of Agriculture,
The Director of Industries,
The Compiler, General Administration Report,
The Commissioner of Labour and Director of Information,
The Oriental Translator to Government,
The Accountant General,
The General Department,
The Finance Department,
The Public Works Department,
The Secretary to the High Commissioner for India, London (by letter).

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